Drug and Cosmetic Industry

SEPTEMBER 1958

UNIVERSITY OF GEORGIA
SEP 29 '58
LIBRARIES

INCLUDING PACKAGING & SELLING

When you see this big

you know then

N

You will be proud of your products made with the good scents Norda makes.

Norda puts its brand on the best.

Test this statement's trueness yourself.

Pick some scented or perfumed quality product selling successfully. A Norda scent may be helping to sell it.

Norda makes good scents

Norda®

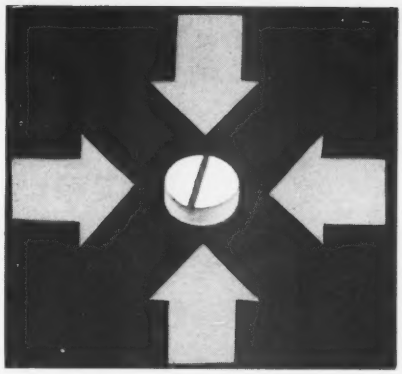
Samples, free, by sending your business letterhead to

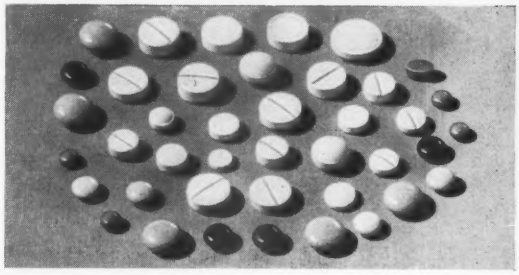
NORDA, 601 W. 26 St., New York 1, N. Y. • Chicago • Los Angeles • San Francisco • Toronto • Montreal • Havana • London • Paris • Grasse • Mexico City

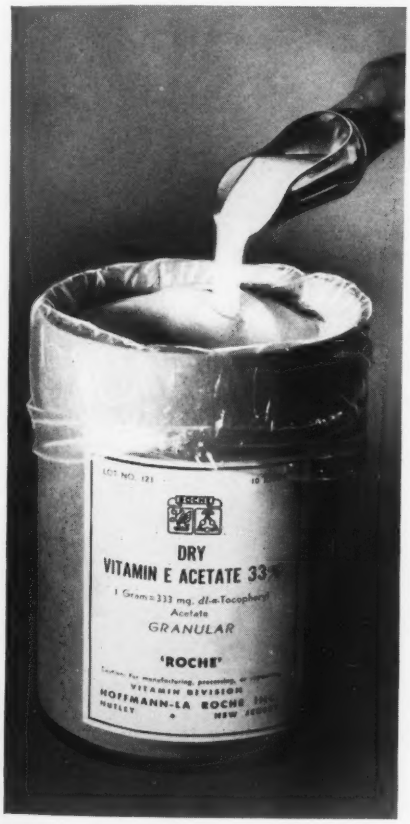
NEW from

ROCHE®

DRY
WHITE
POTENT
POURABLE







CONVENIENT
COMPRESSIBLE
Vitamin E Acetate* 33%

Two Types—Granular—Fine Powder

***as dl-alpha-Tocopherol (yl) acetate (International Reference Standard)**

- *You get* vitamin E tablets that are snow white, small, highly potent (100 mg., even 200 mg.), reassuringly stable, and pharmaceutically elegant.
- *You make* high-potency *flat* tablets from Roche® Vitamin E Acetate 33% granular type *directly by compression*. You just add lubricant.
- *You use* dry Vitamin E Acetate 33% Roche®, fine powder type for tablets with *curved* faces (a granulation process is required). Also for multi-vitamin tablets, capsules, special granulations, and dry food stuffs.
- *You save labor*, cut handling time and costs.
- *You like* the idea? Get samples and technical bulletin from your Roche man, or write directly to the Vitamin Division, Hoffmann-La Roche Inc.

Rely, too, on Roche Process, Roche Progress for *liquid forms* of vitamin E — *Vitamin E Acetate Roche* [dl-alpha-Tocopherol (yl) Acetate]. 1 milligram equals 1 International Unit. This is the International Reference Standard for vitamin E. *Vitamin E Roche* [dl-alpha-Tocopherol (unesterified)]. 1 milligram equals 1.1 International Unit. The latter, as you know, has a highly useful antioxidant, as well as vitamin E value.

VITAMIN E COMES RIGHT FROM ROCHE

ROCHE ROUND THE WORLD

VITAMIN DIVISION • **HOFFMANN-LA ROCHE INC.** • NUTLEY 10, N. J.

Pacific Coast distributor: L. H. Butcher Company, San Francisco, Los Angeles, Seattle, Portland, Salt Lake City. *In Canada:* Hoffmann-La Roche Ltd., Montreal 9, P. Q.

Affiliated companies: Basle • Bogota • Buenos Aires • Grenzach • Havana Johannesburg • London • Madrid • Mexico City • Milan • Montevideo • Paris Rio de Janeiro • Stockholm • Sydney • Tokyo • Vienna • Agencies in other countries

Drug and Cosmetic Industry

Contents **September 1958 Vol. 83 No. 3**

Cover by Joel

Feature Articles

289 **Antibiotic Economics**

292 **Lanolin Derivatives and Modifications**
by Gabriel Barnett

296 **Obesity and Appetite Depression**
by Bernard Idson

298 **The International Federation of Cosmetic Chemists**

300 **Executive Compensation in Our Industry**
by Philip Dutter

302 **A Look to the Future**
by G. M. Savage

304 **Tablet Binders**
by Leonard S. Donaghy

Packaging and Selling Section

307 **A Color Match**

309 **The Billion Dollar Glass Business**
by Richard L. Cheney

315 **Packaging and Selling**
by Frazer V. Sinclair

323 **Packaging News**

329 **D & C Advertising News**
by Ted Klein

Departments

281 **Keeping Posted**
by Thomas R. Farrell

330 **Patent Thoughts and Trends**
by Thomas Cifelli, Jr.

333 **News**

345 **Management Forum**
by Francis Chilson

370 **Industry's Books**
by Harry G. Kelbly

373 **Trade Literature**

Technical Abstracts

by Joseph Kalish, Ph.D.

354 **Perfumer's Shelf**

357 **Compounder's Corner**

361 **Advancing Therapy**

365 **Skin Research**

369 **Readers' Questions**

Editor THOMAS R. FARRELL
Managing Editor GRACE McGRAW SMITH
Technical Editor JOSEPH KALISH, Ph.D.
Raw Material Editor HARRY G. KELBLY
Production Consultant FRANCIS CHILSON
Art Director MAX FRANKEL

Drug & Cosmetic Industry is published monthly by Drug Markets, Inc., Frazer V. Sinclair, President and Treasurer; Thomas R. Farrell, Vice-president and Secretary. Editorial and General Office: 101 West 31st St., New York 1, N. Y., U. S. A. Publication Address: Sun Printing Corp., 28 Renne Ave., Pittsfield, Mass., U. S. A.

Business Manager, Frazer V. Sinclair; Advertising Manager, P. W. Alexander; Advertising Representatives, Walter M. Brauneiss, C. R. Keeley; Production Manager, Katherine Hyde; Circulation Manager, Harry G. Kelbly.

Midwestern Advertising Representative: Dwight Early and Sons, 100 No. LaSalle St., Chicago 2, Telephone, CEntral 6-2184.

Subscription price $3.00 a year, in advance. Foreign Countries, $5.00. Single copies, 35c; Back issues 50c. Entered as Second Class Matter, January 1, 1928 at the Post Office at Pittsfield, Mass., under the Act of March 3, 1879. Member of Audit Bureau of Circulation.

Contents Copyrighted 1958
by Drug Markets, Inc.

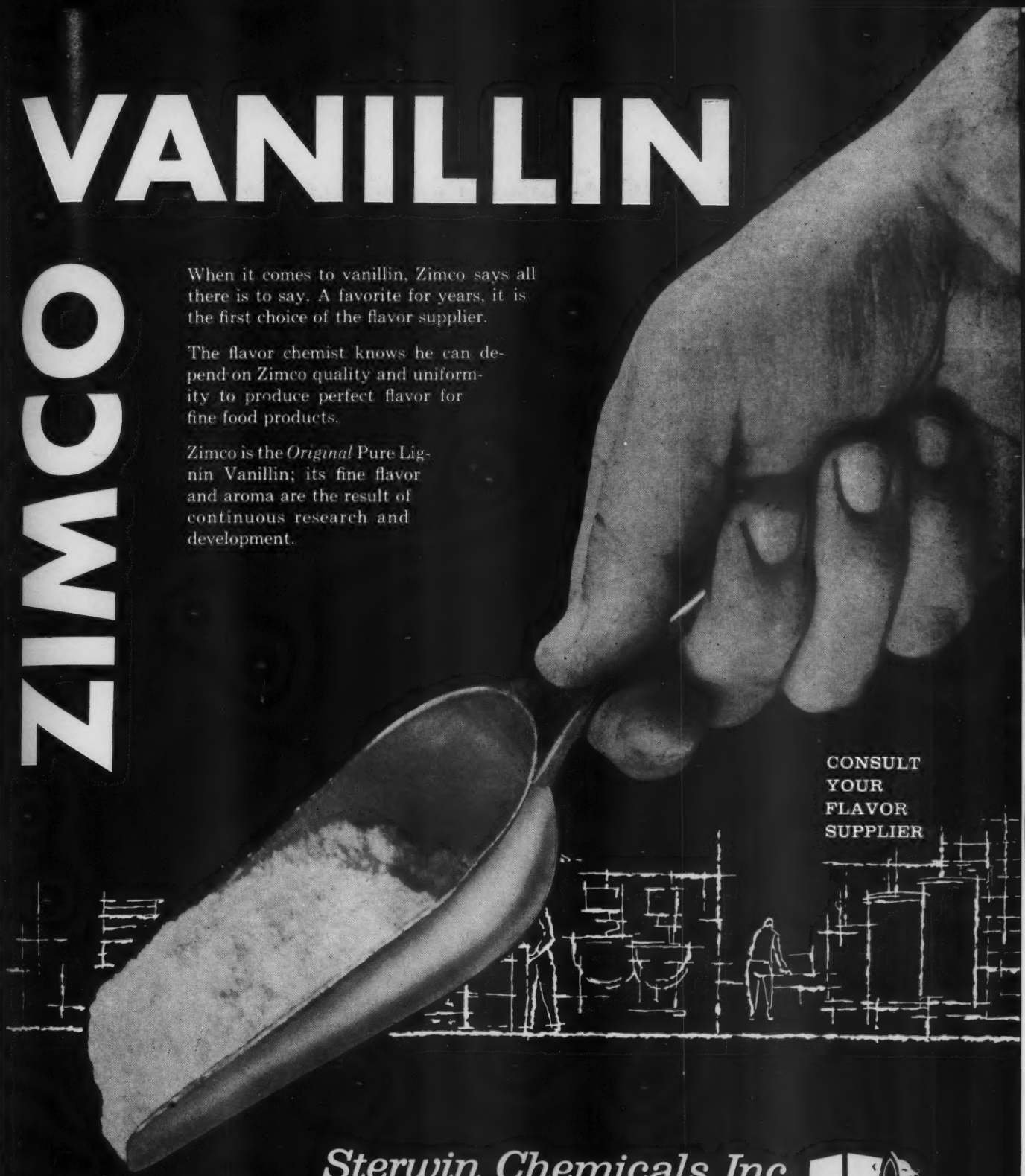
VANILLIN

ZIMCO

When it comes to vanillin, Zimco says all there is to say. A favorite for years, it is the first choice of the flavor supplier.

The flavor chemist knows he can depend on Zimco quality and uniformity to produce perfect flavor for fine food products.

Zimco is the *Original* Pure Lignin Vanillin; its fine flavor and aroma are the result of continuous research and development.



CONSULT
YOUR
FLAVOR
SUPPLIER

Sterwin Chemicals Inc.

SUBSIDIARY OF STERLING DRUG INC.

1450 BROADWAY, NEW YORK 18, N.Y.
2020 Greenwood Avenue, Evanston, ILL.

KEEP YOUR EYE ON
STERWIN

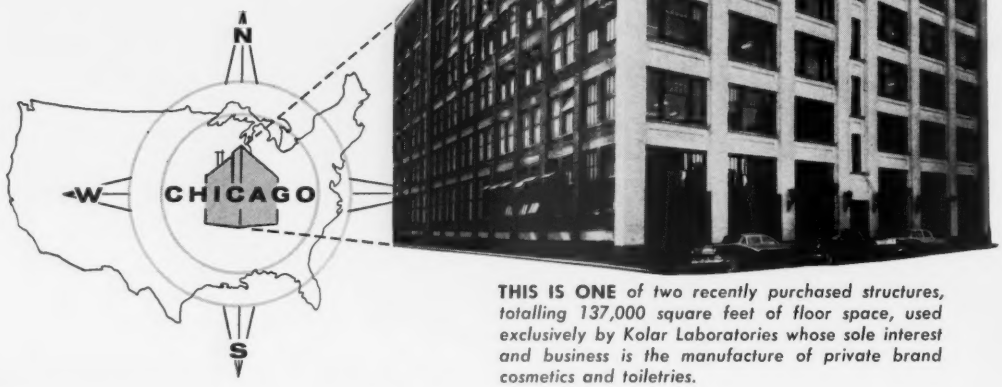
BRANCH OFFICES: Atlanta • Buffalo • Dallas • Evanston (Ill.) • Kansas City (Mo.) • Los Angeles • Minneapolis • Portland (Ore.) • St. Louis

WAREHOUSES IN PRINCIPAL CITIES

WORLD'S LARGEST SUPPLIERS OF VANILLIN

Here's the SOLUTION

Kolar's Low Cost Midwestern Private Brand Cosmetic Manufacturing!



THIS IS ONE *of two recently purchased structures, totalling 137,000 square feet of floor space, used exclusively by Kolar Laboratories whose sole interest and business is the manufacture of private brand cosmetics and toiletries.*

IF YOU DISTRIBUTE COSMETICS OR TOILETRIES...

. . . and are seeking ways to offset rising costs and advancing freight rates, you need not undertake capital financing to build, equip and staff a new plant . . . tie up more money in fixed overhead . . . or assume added production, payroll and personnel problems. All or any part of your manufacturing and packaging (in meeting uncertain or peak load demands) can be handled more cheaply from Kolar's Midwest location.

Kolar is set up to handle a big volume of work. Its personnel know the importance of accurate process control and the need for trimming costs. They are skilled in maintaining quality and expediting production—to meet schedules on time. The whole operation, including Kolar's favorable location, offers benefits that really cannot be matched.

Centrally situated at the nation's hub of transportation, with suppliers of glass and ingredients at its very doorstep, Kolar CAN MANUFACTURE, PACKAGE AND SHIP CHEAPER. If you would like to operate more profitably, ship NORTH, SOUTH, EAST, or WEST at lower cost, and free yourself from production worries—Kolar does have the solution. Phone or write:

KOLAR LABORATORIES, INCORPORATED

1123 WEST JACKSON BLVD., CHICAGO 7, ILLINOIS • Phone: TAylor 9-2060

New England Area: 2 Pine St., Easthampton, Mass., Phone: Easthampton 1250

New York Area: 50-48 St., P. O. Box 807, Weehawken, New Jersey, Phone: Union 6-1277

RESEARCH OF DEPTH AND IMAGINATION

Constant research for more than 65 years has made the contribution of Firmenich to the perfumery world both substantial and imaginative. Joining the academic approach to technical skills, Firmenich has achieved the synthesis of a wide range of natural materials, created new tonalities, discovered complex notes hitherto unperceived. These specialties enjoy universal acceptance and their creators have been honored by the Nobel Prize and four International Awards administered by the American Chemical Society. The originality of their research has been shared with fellow scientists in more than 300 technical papers. Firmenich technicians are highly qualified to assist you in your creative problems and in the use of Firmenich specialties in your imaginative practice of the art of perfumery.

FIRMENICH INCORPORATED

FIRMENICH & CIE.
SUCCESSEURS DE
CHUIT, NAEF & CIE.
GENÈVE SUISSE

250 WEST 18TH STREET, NEW YORK 11
FIRMENICH OF CANADA, LIMITED,
348 WALLACE AVENUE, TORONTO
CHICAGO OFFICE: 612 NORTH MICHIGAN AVENUE
LOS ANGELES, 1756 MALCOLM AVENUE

The Foremost Name in NEW Product Development

DURLIN

for the "ALL NEW" bulk nail polish

First **in Research**
First **in New Improved Clinically Tested Nail Enamels**
First **in Fashion Right Colors**
First **in Technical and Packaging Service**

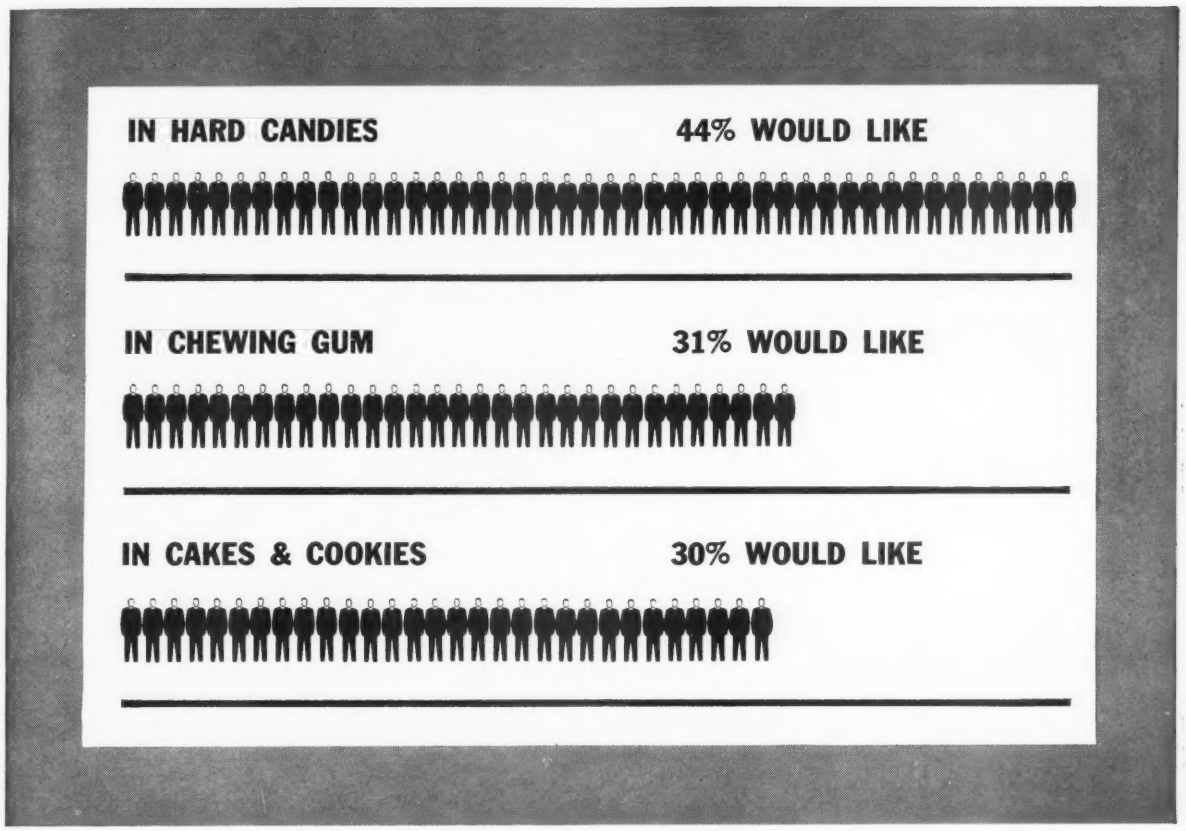
glamorous hands *around the world . . .*

DURLIN CO.

744 Broad Street, Newark 2, N. J.

Cable Address: Durlin Newark Newjersey

34,000,000 ADULTS WANT THIS FLAVORING



Anethole is the Answer!

Wherever flavoring is important, this recent survey by the Gallup Organization is revealing new markets for anise among one out of three adults. Trained Gallup Poll interviewers determined that anise, or the closely similar flavor, licorice, is preferred by millions in a wide variety of products. Here are some additional facts from this nation-wide survey:

- 34,000,000 adults (out of an estimated 103,000,000 U. S. adult population) are real fanciers, while another 16,500,000 adults like the flavor.
- A larger proportion of the fanciers is in the upper economic group.
- Slightly more women than men like anise flavoring.
- More younger adults than older persons say that anise flavor would appeal to them.
- Anise flavoring is more popular in the East and West and in communities of over 500,000 population.
- Those who like the flavor are strongly in favor of it!

Hercules anethole, a domestic equivalent to imported anise, is produced from a plentiful domestic raw material source to meet U.S.P. specifications. Anethole represents a dependable source of supply for a high quality product. Ask your regular supplier for Hercules anethole or flavors based on anethole, and include anethole-flavored products in your line.

HERCULES® ANETHOLE

HERCULES POWDER COMPANY
INCORPORATED
Wilmington 99, Delaware

NC 58-1

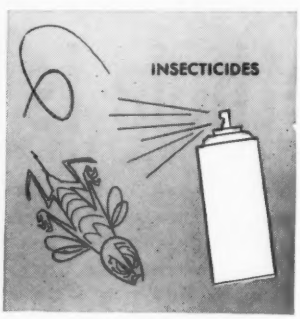
whatever your AEROSOL product

FELTON
fragrances insure its success!

There is a whole new world of merchandising opportunities for cosmetics, household and industrial products, thanks to Aerosols. But . . . Aerosols present special problems of fragrance compatibility. That is where Felton's creative experience makes the big difference! Our perfume chemists and Aerosol technicians will adapt or custom-create the fragrance to meet the exacting requirements of your product and give it more sales appeal.

EXTRA ADVANTAGES OF FELTON'S AEROSOL PERFUME DIVISION

- Aerosol laboratory equipped with the most modern filling apparatus.
- Testing equipment for checking every component making up your Aerosol product.
- Extensive experience on problems of end odors and irritation factors.
- Samples of your perfumed preparation submitted in the actual Aerosol container ready for your evaluation.



CONSULT WITH US TODAY

FELTON CHEMICAL COMPANY, INC.
599 Johnson Avenue Brooklyn 37, N. Y.
SALES OFFICES AND PLANTS IN MAJOR CITIES, CANADA AND OVERSEAS

VEEGUM® scores high with Cosmetic and Pharmaceutical Manufacturers because it does so many jobs so well. VEEGUM is a natural inorganic thickener, emulsion stabilizer and suspending agent. VEEGUM is purified magnesium aluminum silicate, with thixotropic properties. It is non-toxic and non-irritating. It is odorless and tasteless, white and opaque.

USED IN AQUEOUS DISPERSIONS:

VEEGUM suspends at lower viscosities than organic gums.

VEEGUM, being thixotropic, gives long-time stability.

VEEGUM, thickening slightly with heat, keeps product consistency uniform despite above normal storage temperatures.

Why not try VEEGUM in your laboratory? We'd be delighted to send samples.

Use This Coupon To Get Fast Action

R. T. VANDERBILT CO., SPECIALTIES DEPARTMENT
230 PARK AVENUE, NEW YORK 17, N. Y.

( ) Please send VEEGUM Bulletin 53J ( ) Send sample of VEEGUM

State Application_____

Name_____

Title_____

(Please attach coupon to your Company letterhead) P–2

By Far . . . the largest number of Perfume and Fragrance advertisers ever to use one magazine are now telling their story in BEAUTY FASHION. Read BEAUTY FASHION each issue for the fascinating story these perfume advertisements tell.

See in BEAUTY FASHION:

Angelique, Inc.
Elizabeth Arden Sales Corp.
Balenciaga
Blanchard, Inc.
Bourjois
Hattie Carnegie
Caron Corporation
Carven Parfums
Chanel, Inc.
Parfums Charbert, Inc.
Charles of the Ritz (Directoire)
Mary Chess
Cigogne Sortilege
Ciro, Inc.
Colonia, Inc.
Corday, Inc.
Coty, Inc.
Countess Maritza
Jean d'Albret
Dana, Inc.
Christian Dior
Parfums d'Italia
D'Orsay Sales Corp.
DuBarry
Duvelle's
Parfums Evyan Co.
Fabergé, Inc.
Guerlain, Inc.
Houbigant, Inc.
Lancome Sales, Inc.
Lanvin
Lucien Lelong
Lenel Company
Lentheric, Inc.
Lubin
Parfums Marcy, Inc.
Maromay, Inc.
Prince Matchabelli
Miahati, Inc.
F. Millot, Inc.
Germaine Monteil
Myrurgia
Jean Naté, Inc.
Jean Patou, Inc.
Robert Piguet
Renoir
Maurice Rentner Perfumes, Inc.
Nina Ricci
Rigaud
Marcel Rochas
Roger & Gallet, Inc.
Nettie Rosenstein
Parfums Schiaparelli, Inc.
Simonetta
Shulton, Inc.
Tilford Toiletries
Tuvaché, Inc.
Les Parfums Worth

BEAUTY FASHION THE MAGAZINE OF PERSONAL SELLING

101 West 31st Street, New York 1, N.Y.

Exploring the Secrets of Nature

Applying new scientific knowledge to develop synthetic aromatics hitherto unknown
Re-creating, synthetically, precious natural distillates and extracts
*These are problems successfully mastered * by our research chemists and perfumers.*
Experiences thus gained inspire to further DRAGOCO ACHIEVEMENTS

* **BULGARYOL** synthetic Bulgarian rose oil
NEROLYOL synthetic Neroli oil big. pet.
BIGARADIA perfect reproduction of «Absolu de Fleurs d'Oranger»

DRAGOCO INC. NEW YORK

250 WEST BROADWAY, NEW YORK 13, N. Y. · TEL. CAnal 6—5813/15

ARE YOUR PROFITS FOR THE BIRDS?

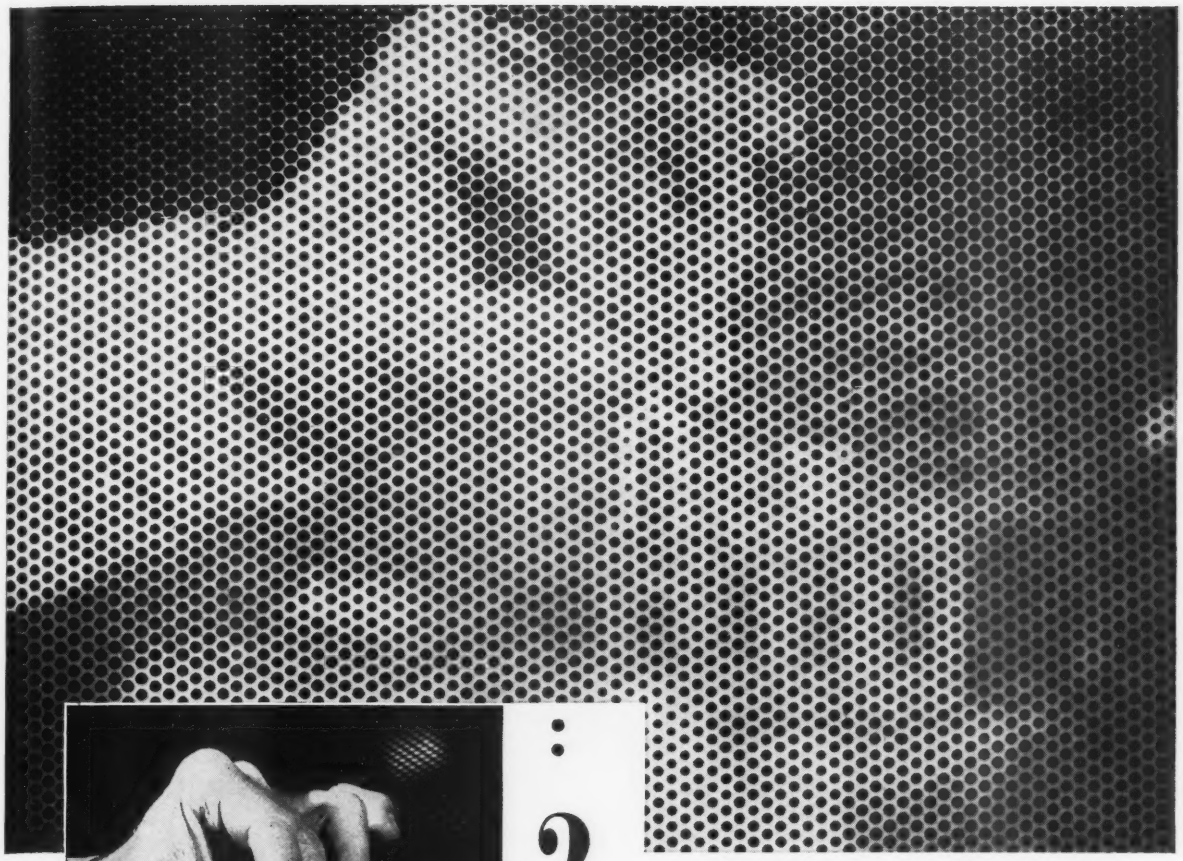
Orbis can show you economies in odors that put your products in favor and more profits in the bank.

The art of making scents make cents is a proud art at Orbis. Whatever scented product you market, an Orbis Odor will help it prosper.

Why not set Orbis on the scent of success for you?
A card will bring you our catalogue of good products.
A call will bring us running.

ORBIS
PRODUCTS
CORPORATION
601 W. 26th STREET
NEW YORK
WAtkins 4-7660

BANK ON ORBIS SCENTS AND SAVE DOLLARS



2 parts in 1,000,000

Using Spectrophotometric Analysis we detect impurities in White Oils which heretofore defied ordinary testing—even amounts as low as 2 parts per million. This permits positive control of the refining process and the elimination of those substances which gradually decompose and impart an objectionable odor to the oils upon exposure to light.

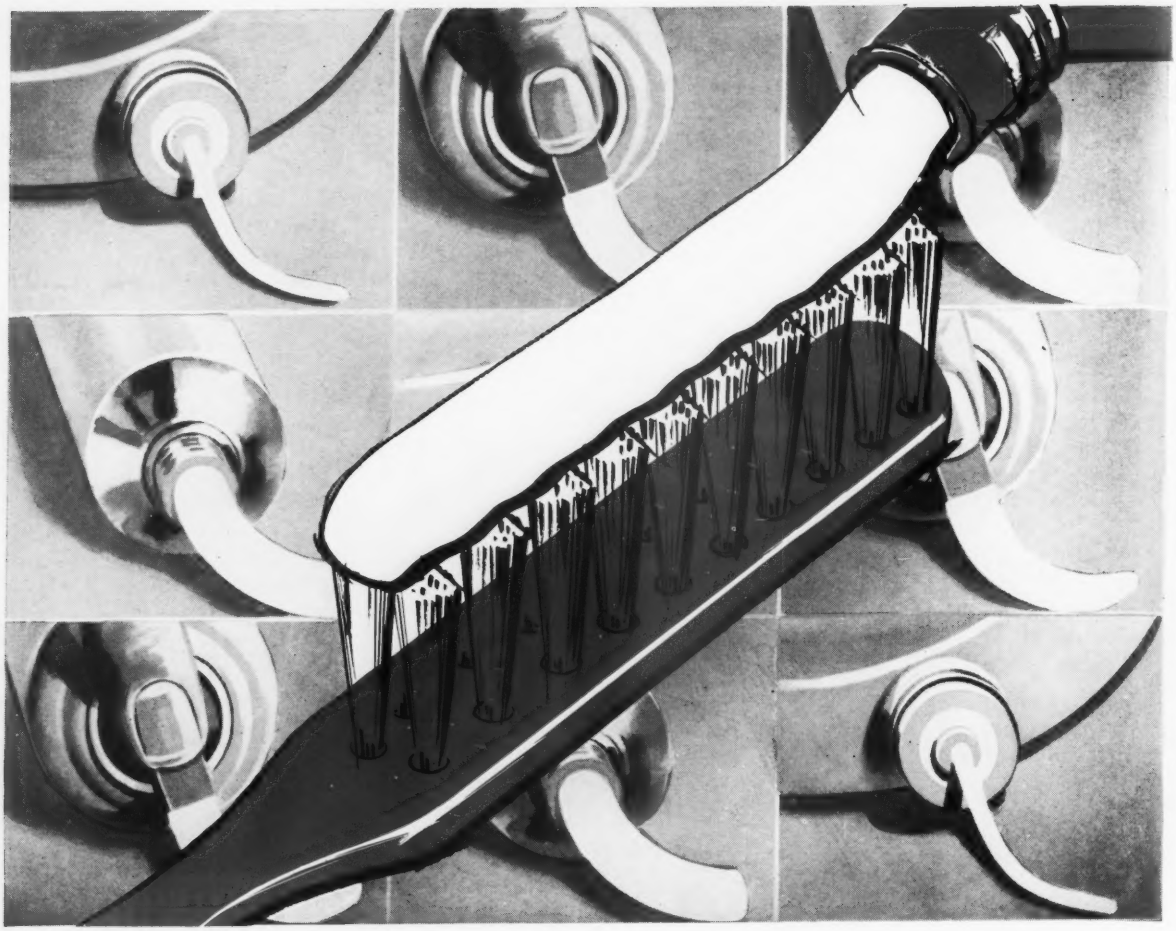
result: *Highest order of light stability and purity ever assured in White Oils.*

Penn-Drake® **WHITE OILS**

Write for 20-page Article on Spectrophotometric Control.

penn drake products

PENNSYLVANIA REFINING COMPANY
BUTLER, PENNSYLVANIA
Branches: Cleveland, Ohio and Edgewater, N. J.



For free flowing "squeeze-ability"

Glycerine gives creamy body to toothpastes and other formulations. It permits them to flow freely through container openings of any shape, any size.

Why? Because Glycerine offers exceptionally good control of body and consistency . . . lubricates . . . prevents settling . . . resists hardening . . . prolongs product life throughout shipping, storage and use.

Glycerine offers you more than an unique balance of properties. It is stable in price, dependable in supply, compatible with most ingredients favored for pharmaceuticals and toilet goods. Its usefulness continues to grow. We'd like to send you our 18-page booklet: "Glycerine Properties and Uses." Address your request to the Glycerine Producers' Association.

Properties

HYGROSCOPICITY • STABILITY

SOLVENT POWER • VISCOSITY

NONVOLATILITY • NONTOXICITY

TASTE • COMBINING WEIGHT

Applications

HUMECTANT • CARRIER

SOLVENT • LUBRICANT

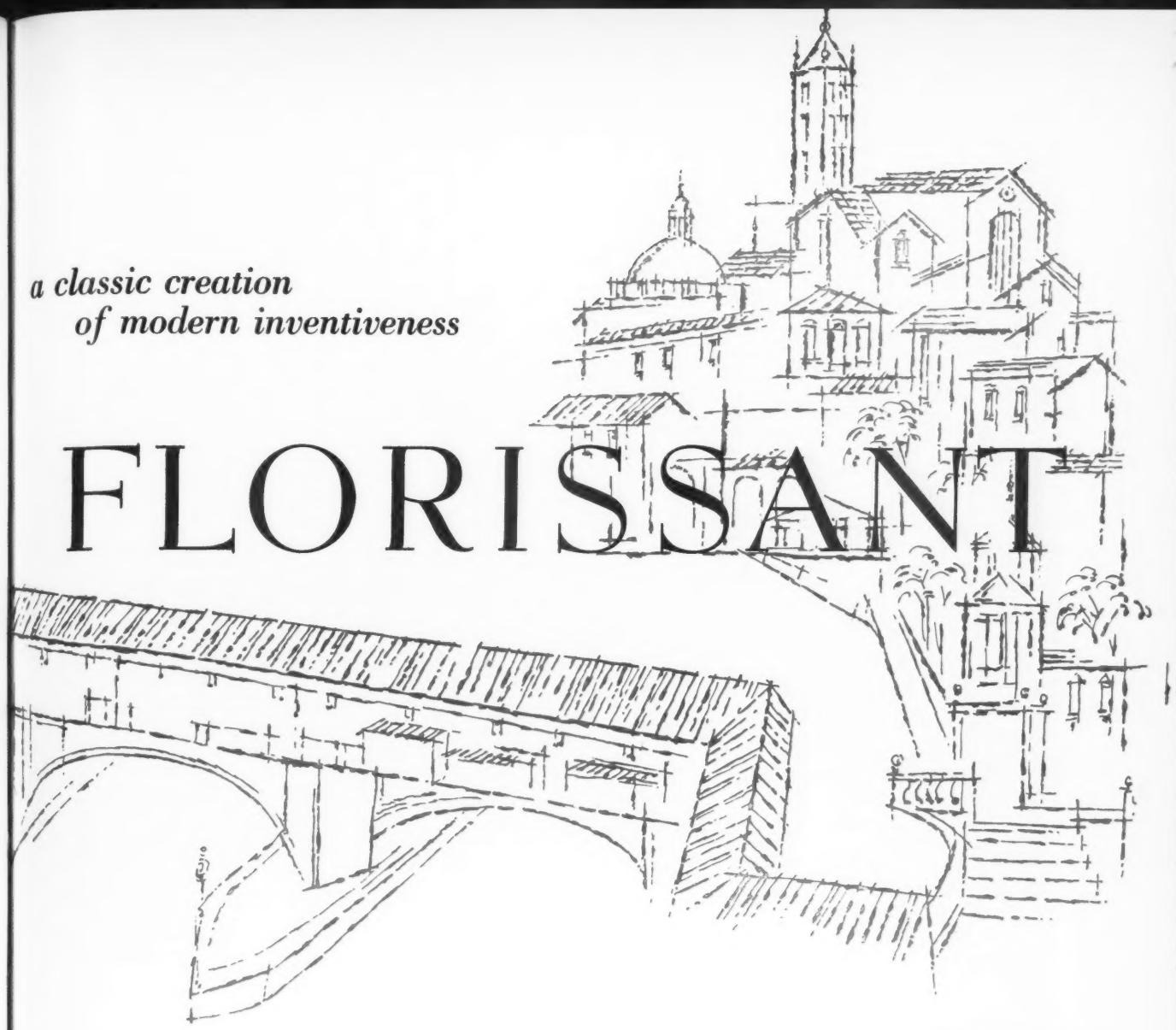
SOFTENER • EMOLLIENT

ANTI-FREEZE • ALKYD BASE

GLYCERINE PRODUCERS' ASSOCIATION • 295 MADISON AVENUE, NEW YORK 17, N. Y.

a classic creation
of modern inventiveness

FLORISSANT



Imaginative yet practical, *Florissant*, a recent Synfleur creation, offers a superb opportunity for creams, powders, lotions and cologne formulations.

At the same time light and airy and tenacious and sophisticated, *Florissant* combines the elements of maximum appeal for classic creations.

We would welcome the opportunity to send samples upon request, or a trial pound at **$7.50**.

Synfleur

SCIENTIFIC LABORATORIES, INC.
MONTICELLO, N. Y.

ATLANTA • DETROIT • LOS ANGELES • NEW YORK • SAN FRANCISCO • MEXICO, D. F. • HAVANA • MONTREAL • Guatemala City • San Salvador • San Pedro Sula Managua • San Jose • Panama • Barranquilla • Medellin • Bogota • Caracas • Maracaibo • Rio de Janeiro • Buenos Aires • Santiago

New York Sales Office: Telephone Plaza 7-1960

Lautier Fils

"A STANDARD OF QUALITY SINCE 1795"

GRASSE, FRANCE

AROUND THE WORLD

ESSENTIAL OILS
NATURAL FLOWER ABSOLUTES
CONCENTRATED NATURAL FIXATIVES
SYNTHETIC AROMATICS

Uniform
Quality Merchandise
Shipped From
any of Our
Many Branches
and Factories

LAUTIER FILS, INC.

321 FIFTH AVENUE, NEW YORK 16, N.Y.

GRASSE • PARIS • LONDON • BEYROUTH • ST. LOUIS • CHICAGO • RIO DE JANEIRO

UNIFORMITY
you can rely on...

Refined and sun-bleached from the world's finest Crude Beeswaxes,

BEEHIVE BRAND BEESWAX
undergoes rigorous chemical and physical tests to assure:

1. Uniform Purity
2. Uniform Texture
3. Uniform Whiteness

Behind it is the reputation and integrity of a concern with more than a century of experience in blending beeswax formulae to special requirements. The guaranteed purity and uniform texture and whiteness of Beehive Brand Beeswax will simplify your laboratory work and assure more saleable quality in your finished products.

WILL & BAUMER Candle Co., Inc., Dept. DC, Syracuse, N. Y.

BEEHIVE BRAND *Beeswax*

Free **Consultation Service**

• The experimental data and practical manufacturing experience of more than 100 years' specialization in beeswax and beeswax compounds are at your service without cost or obligation.

Write us about your beeswax problems.

NEW YORK 16	BOSTON 9	CHICAGO 6	LOS ANGELES 15
15 E. 32nd St.	71 Broad St.	162 N. Franklin St.	952-4 S. Flower St.

CHEMICAL NEWS *about push-button profits*

Once upon a time a "package" was a bottle, a box, a paper bag, a tube. The package served simply as a container, made no special demands on the contents. These days products have to learn new tricks—and the package calls the tune! New containers make pharmaceutical specialties dispense automatically. For alert merchandisers these packages can deliver extra share-of-market . . . *IF* their product can be made to behave in the new package. Here's profitable news about chemicals that can help meet the demands of this new age . . .

You may wish to check certain items in this advertisement and forward to those concerned in your company.

Route to:

_____

_____

_____

_____

NEW SYNTHETIC GUM IMPROVES AEROSOL DISPENSING

Power-packed aerosol packages are putting the pressure on old products to learn new tricks. In toothpaste, for example, this new packaging idea demands that today's product be super-dispensable . . . flow out more smoothly than ever, without sputter, and with a creamy texture. And that it *stay* that way.

This job may call for Methocel® 60 HG—a new, superior emulsion stabilizer and thickening agent that holds ingredients in suspension, gives the paste better flow characteristics, keeps it from gelling. You may find the answer to your aerosol dispensing problems in this new synthetic gum, Methocel 60 HG.

The roll-on dispensers, too, have found Methocel 60 HG an ideal agent. Now in use in the new roll-on types of deodorants, it is more effective than most natural gums (or synthetics, for that matter) as an emulsifier and emulsion stabilizer. The reason: Methocel is surface active . . . lowers the surface tension of water. Plus factor for emulsion chemists: Methocel 60 HG, and other Methocel types, can be added directly into the oil slurry before adding water.

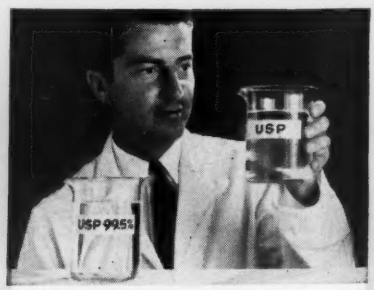
Many processors recognize the advantages of synthetic Methocel over other gums. They include: uniformity of properties, closer control of purity, steady production, unlimited availability and stable price. Then there are

DOW CHEMICALS

four more of profitable importance

DOWANOL® DPM

Dipropylene glycol methyl ether makes an ideal coupling agent for pharmaceuticals. Toxicity is low, solvent action high, profit performance excellent.



GLYCERINE

Immediately available in USP and USP 99.5% grades from points around the country. Dow's synthetic glycerine is unsurpassed for clarity and purity.

special advantages . . . for example, Methocel forms smooth, clear solutions with water. Many other gums are partially crosslinked, thus form only partly dispersed suspensoids. The nonionic, neutral qualities of Methocel permit its use over a wide pH range. The acid reaction of other gums limits their use to a pH range on the alkaline side. Some natural gums are restricted in use with certain drugs due to the presence of reactive carboxyl groups. Not so, with Methocel. Synthetic Methocel resists attack by microorganisms that may find other gums an easy target.

When production gums up, the new Methocel Handbook or Dow Technical Service are available to help solve your problem.

PLAQUEMINE:

New pin on the Propylene Glycol map

Popular use of Propylene Glycol USP is on the increase. To meet the forecast need, Dow is now building at Plaquemine, La., a new plant that will assure steady, abundant supply of this low cost chemical of importance to the pharmaceutical industry.

One of the most useful entries in the Pharmacopoeia, Propylene Glycol USP does many things well. It acts as carrier, solvent, emollient, humectant, preservative . . . in vitamin formulations, antiseptics, salves, elixirs, ointments. In cosmetics, manufacturers of cream lotions capitalize on its ability to soothe and soften skin without leaving stickiness.

In many pharmaceutical specialties the big push is to "push-button" . . . the Methocel gums make the changeover easy!

With the help of Chlorothene, aerosol depressant problems go "Phfft"!

CHLOROTHENE:

Does double duty in aerosols

Word is that the new solvent Chlorothene® (Dow 1,1,1-trichloroethane, inhibited) is being specified more and more by aerosol packagers, because of its ability to do *two* essential jobs well.

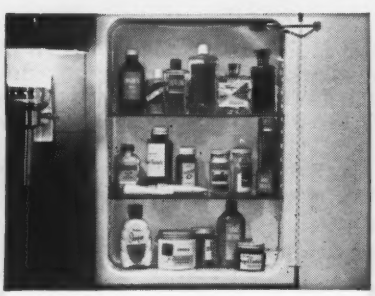
First, Chlorothene is a quality vapor pressure depressant . . . actually does the job for less money. Chlorothene saves again in providing higher solvency for active ingredients, often eliminating the need for additional solvents. Chlorothene may now be used in hair sprays as a portion of the propellant system. Aerosol packaging costs got you depressed? "Cheer up with Chlorothene!"

* * * *

If you would like more information about any of the chemicals mentioned in this advertisement (or any other Dow chemicals) please write us for complete information: THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Sales Department 756D.

AROMATICS

At Dow there is an unceasing search for new chemicals for flavor and odor use. New aromatics continually join coumarin, Rosaryl® Dorisyl®, C•64®.



DOWICIDE®

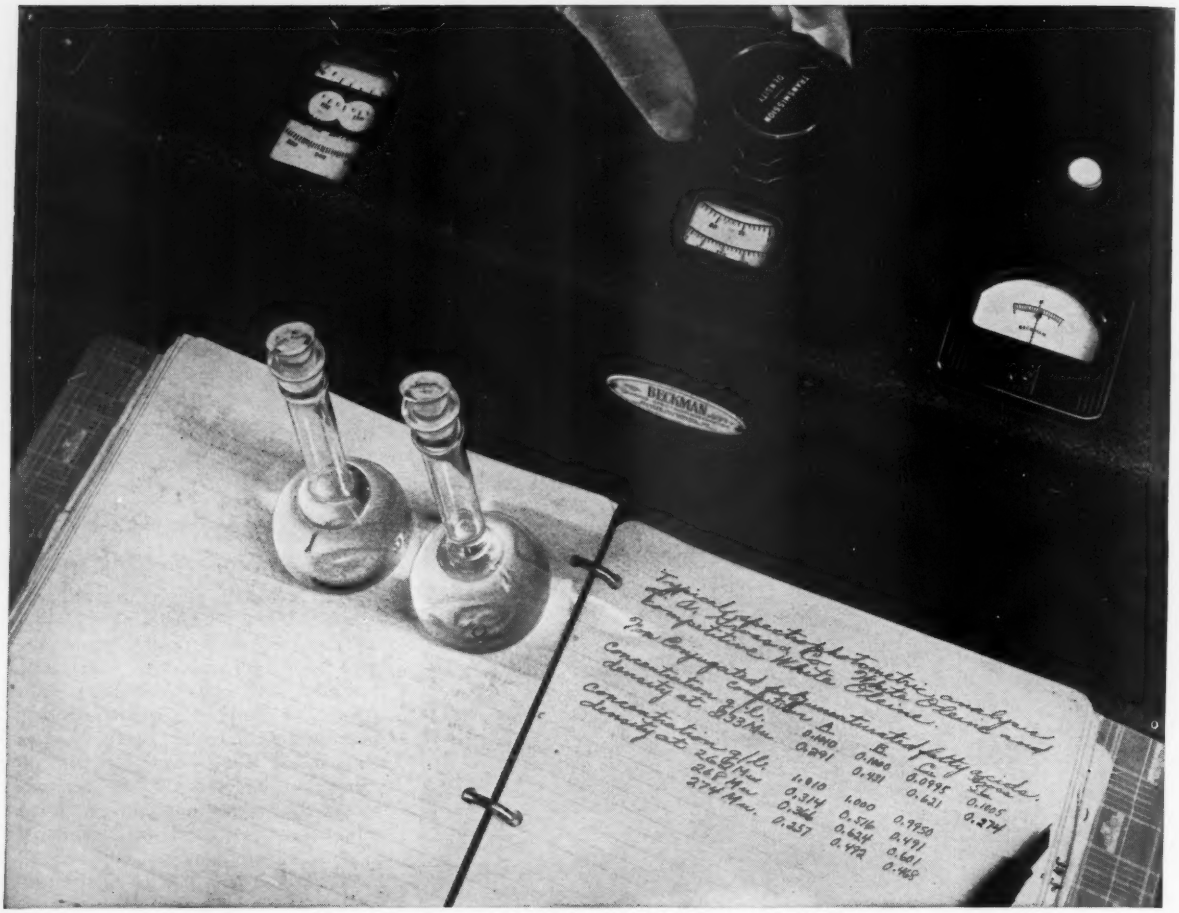
Stops bacteria and fungi. 14 different preservatives protect hundreds of different products from deterioration. Put them on guard for you.

DOW CHEMICALS
basic to the drug and cosmetic industry

Aromatics • Emulsifiers • Alkalies
Thickeners • Stabilizers
Glycerine • Solvents • Humectants
Glycol Ethers • Polyols
Preservatives • Ion Exchange Resins
Chelating Agents • Methylcellulose
Amino Acids • Fine Chemicals
Pharmaceutical and Medicinal Intermediates

YOU CAN DEPEND ON

DOW



In a recent UV spectrophotometer test with three other white oleines, GROCO 5L was shown to have the lowest quantity of linoleic acid (233 mμ wavelength). This was demonstrated by density readings of 0.291, 0.431, 0.661 for competitive acids . . . and 0.274 for GROCO 5L.

LINOLEIC IS LOWEST IN GROCO 5L WHITE OLEINE

When GROCO 5L LOW LINOLEIC WHITE OLEINE is tested against competitive oleines, the spectrophotometer clearly proves what many processors have discovered through use—GROCO 5L is lowest of all in linoleic acid content—2.5% maximum.

This means unexcelled lightness of color and unexcelled color stability under heat. The unusual oxidation stability of GROCO 5L LOW LINOLEIC WHITE OLEINE may be judged from Mackey Test results—it remains below 105°C. for better than 5 hours.

With 88% to 90% oleic acid, GROCO 5L also is ideal for chemical use. Among competitive acids it has the highest real fatty acid content and the lowest unsaponifiables.

GROCO 5L LOW LINOLEIC WHITE OLEINE is a straight line to the top quality end product you want . . . whether used as a chemical, in cosmetics, soaps, polishes, wool oils, or oleates. "Always specify A. Gross."

FATTY ACIDS

Stearic Acids • Coconut Fatty Acids • Tallow Fatty Acids • Vegetable Fatty Acids
Red Oils • White Oleines • Hydrogenated Tallow Glycerides • Hydrogenated Fatty Acids

a. gross & COMPANY

295 Madison Avenue, New York 17, N. Y. • Factory: Newark, N. J.
Distributors in principal cities • Manufacturers since 1837

3 *good reasons to use*

PENICK ZINC BACITRACIN

1. STABILITY . . . Penick Zinc Bacitracin retains its potency for longer shelf life and may reduce the necessity for excessive over-rides!
2. PALATABILITY . . . Penick Zinc Bacitracin assists you in making better-tasting lozenges or troches.
3. CONVENIENCE . . . Penick Zinc Bacitracin can be purchased *on one order* with Neomycin, Gramicidin, Tyrothricin and other antibiotics with which it is frequently combined. You save shipping and handling costs by dealing with one supplier.

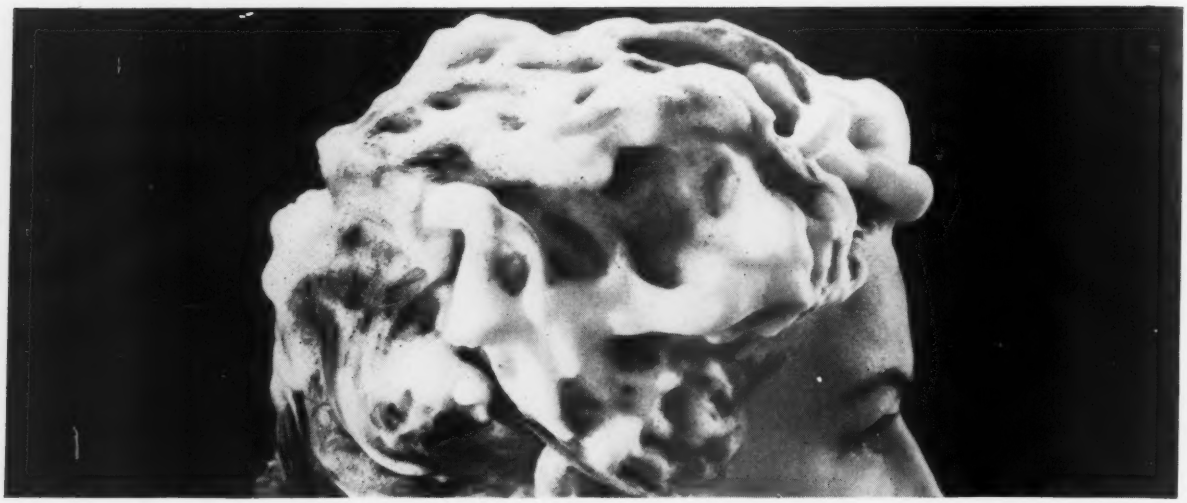
As pioneers in antibiotic manufacture and suppliers in bulk only, we are in a unique position to give you valuable technical assistance in the application of the broad range of Penick antibiotics. Your inquiry will be welcomed. Samples of Penick Zinc Bacitracin available on request.

PENICK

Manufacturers of Fine Chemicals and Drugs

S. B. PENICK & COMPANY 50 CHURCH ST., NEW YORK 8 • 735 W. DIVISION ST., CHICAGO 10

TRITON X-200



Shampoo it extra clean...rinse it extra bright

She's using a cream shampoo with a TRITON X-200 base. Readily soluble in both hot and cold water, this anionic sulfonate provides good detergency and lathering action . . . works even in hard waters . . . promotes clear rinsing. And a little TRITON X-200 goes a long way in your cream shampoo formulations.

Next, she uses an after-shampoo cream rinse containing TRITON X-400 . . . look at the results. Soft, lustrous hair that's completely free of soap film, lubricated without grease. Because this cationic quaternary ammonium compound reduces static electricity, her hair is more manageable, easier to comb.

Try TRITON X-200 and TRITON X-400 in your own formulations. Write for samples and full details . . . or ask for formulating help from our experienced laboratory men.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

TRITON *is a trade-mark, Reg. U.S. Pat. Off. and in principal foreign countries.*

TRITON X-400

Solves 'skinny' problems

A water-white, liquid saturated fatty alcohol,
Non-irritant, almost odourless,
Easy penetration through the epidermis,
Excellent vehicle for lipoid soluble active ingredients,
Dermatologically approved.
For the preparation of liniments, sun-tan oils,
cosmetic creams, emulsions, lipsticks, hair lotions,
shampoos, toilet soaps, shaving creams, and aftershaves.

EUTANOL G

(Registered Trademark at U. S. Patent Office)

DEHDAG

DEUTSCHE HYDRIERWERKE GMBH · GERMANY · DÜSSELDORF

DISTRIBUTORS IN USA:
EAST COAST: Fallek Products Company Inc., 165 Broadway, New York 6, N.Y. MIDWEST: A.H. Carnes Co., 75 East Wacker Drive, Chicago 1, Ill. SOUTH: Ben R. Hendrix Trading Co., Inc., 305 Marine Building, 219 Carondelet Street, New Orleans 12, La. WEST COAST: The East Asiatic Co., Inc., 530 West 6th St., Los Angeles 14, Calif. · The East Asiatic Co., Inc., 465 California Street, San Francisco 4, Calif. • The East Asiatic Co., Inc., 417 Equitable Building, 421 S.W. Sixth Ave., Portland 4, Oregon.
DISTRIBUTORS IN CANADA:
EAST COAST: Canerpa Limited, Suite 223, Drummond Building, 1117 St. Catherine Street West, Montreal. CENTRAL: Canerpa Ltd., 137 Wellington St. W., Toronto. BRITISH COLUMBIA: The East Asiatic Co. (P.Q.) Ltd., Marine Building, Vancouver 1, B. C.

Creative Perfumer

Production

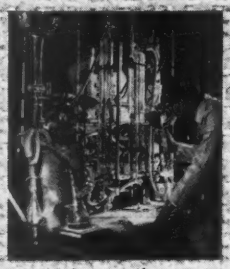
Perfume Evaluation Board

Aromatic Production

Sales

Cosmetic Research

Chemical Engineering



Aromatic
Chemical Research

Quality Control

People...

THE IMPORTANT INGREDIENT

The success of your perfume is the result of the abilities of the many creative, technical and service *people,* who have a part in the creation and production of the perfume itself.

VAH Perfume Evaluation Board... Unmatched in their ability, these professionals screen every perfume sample on the basis of its intrinsic beauty as a fragrance, its adaptability to a specific market, its potential level of consumer acceptance, its relationship to both competitive and companion items... Not the opinion of an amateur panel, but the recommendation of this experienced *board of experts* goes with every perfume sample submitted by VAH.

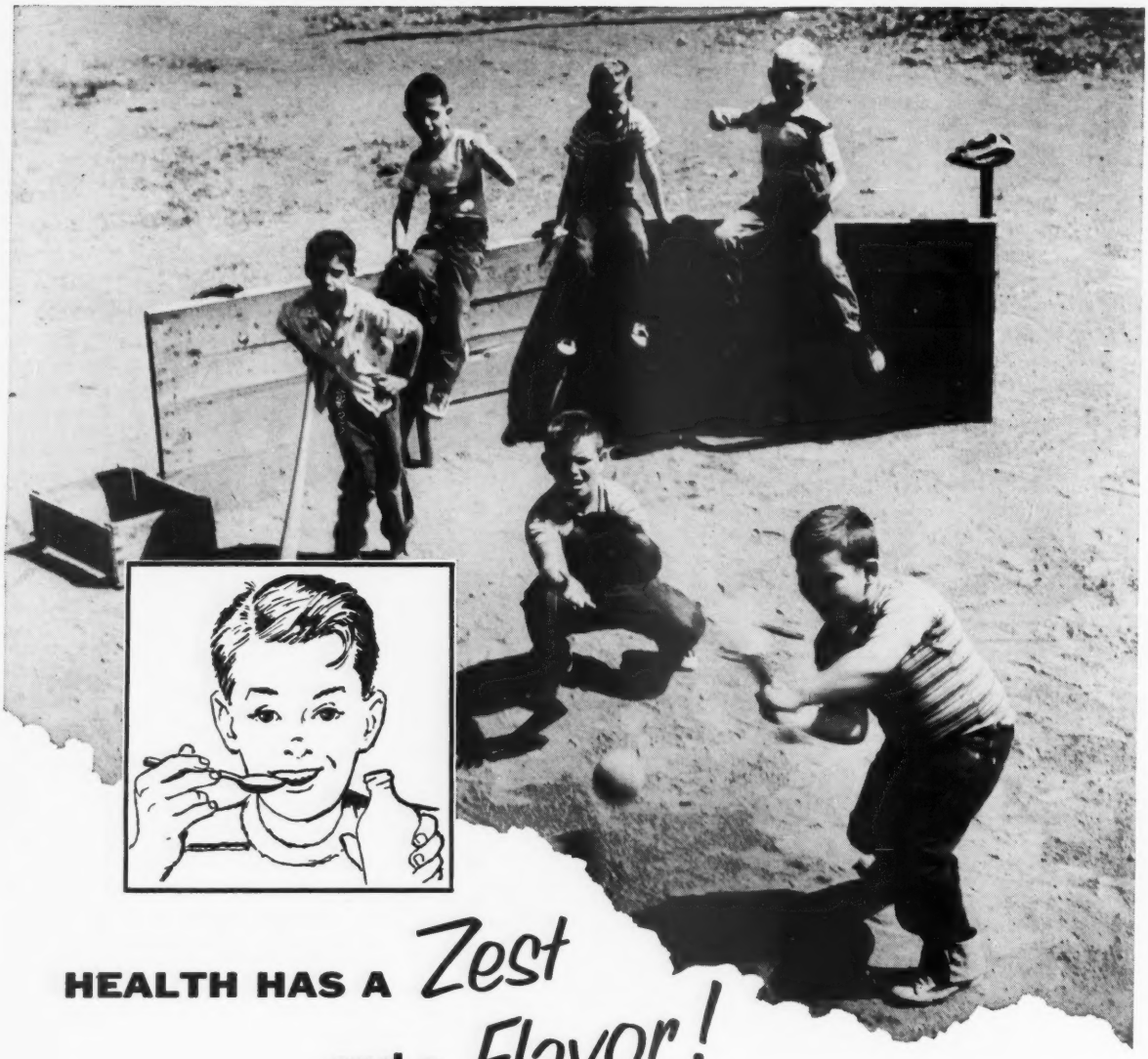
A perfume by VAH has all the ingredients for beauty and success.

van Ameringen-Haebler, Inc.

521 WEST 57th STREET · NEW YORK 19, NEW YORK

van Ameringen-Haebler, S.A.R.L.
Paris, France

van Ameringen-Haebler, Ltd.
Toronto, Canada



HEALTH HAS A *Zest* and a *Flavor!*

Good health has a look, an aura, a zest . . . It shines from the faces of children at play and speaks in their joyous laughter. Health also has a flavor . . . both figuratively and literally . . . a pervasive flavor that surrounds its objects and permeates the atmosphere. Pharmaceuticals, flavored in the D&O Labs, that protect or restore this health emulate its vibrant flavor. For the taste of good health is not bitter or acrid . . . oily or sickly sweet. Rather it is fresh, wholesome, pleasant . . . tailored by the D&O chemists to translate into taste perception the magnificent "quality" of health. Let the D&O Flavor Laboratories give your pharmaceutical the "Taste of Good Health!"

Essentially for You!

Our flavor specialists will work with you on your premises if requested!

D&O ESTABLISHED 1798

OUR 160th YEAR OF SERVICE

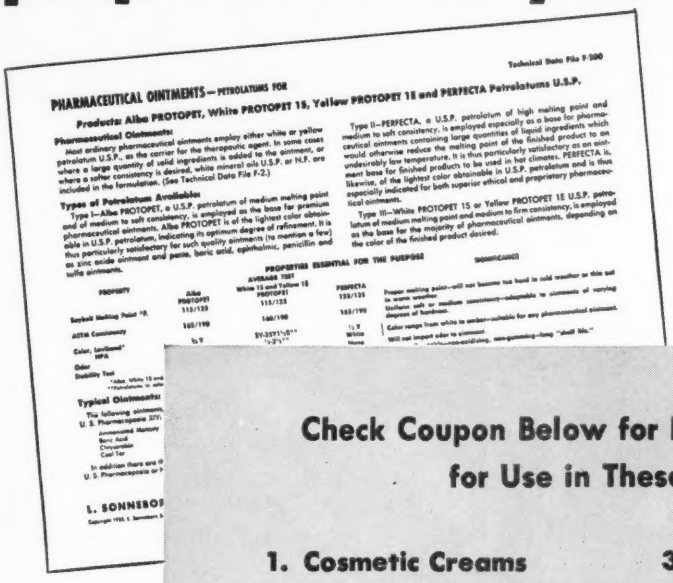
DODGE & OLCOTT, INC.

180 Varick Street, New York 14, N. Y.

Sales Offices in Principal Cities

ESSENTIAL OILS AROMATIC CHEMICALS PERFUME BASES FLAVOR BASES DRY SOLUBLE SEASONINGS

Send today for this useful data on PETROLATUMS prepared to fit your specific needs



Technical Data File F-200

PHARMACEUTICAL OINTMENTS—PETROLATUMS FOR

Products: Alba PROTOPET, White PROTOPET 1S, Yellow PROTOPET 1S and PERFECTA Petrolatums U.S.P.

Pharmaceutical Ointments:

Most ordinary pharmaceutical ointments employ either white or yellow petrolatum U.S.P., as the carrier for the therapeutic agent. In some cases where a large quantity of solid ingredients is added to the ointment, or where a softer consistency is desired, white mineral oils U.S.P. or N.F. are included in the formulation. (See Technical Data File F-2.)

Types of Petrolatum Available:

Type I—Alba PROTOPET, a U.S.P. petrolatum of medium melting point and of medium to soft consistency, is employed as the base for premium pharmaceutical ointments. Alba PROTOPET is of the lightest color obtainable in U.S.P. petrolatum, indicating its optimum degree of refinement. It is thus particularly satisfactory for such quality ointments (to mention a few) as zinc oxide ointment and paste, boric acid, ophthalmic, penicillin and sulfa ointments.

Type II—PERFECTA, a U.S.P. petrolatum of high melting point and medium to soft consistency, is employed especially as a base for pharmaceutical ointments containing large quantities of liquid ingredients which would otherwise reduce the melting point of the finished product to an undesirably low temperature. It is thus particularly satisfactory as an ointment base for finished products to be used in hot climates. PERFECTA is, likewise, of the lightest color obtainable in U.S.P. petrolatum and is thus especially indicated for both superior ethical and proprietary pharmaceutical ointments.

Type III—White PROTOPET 1S or Yellow PROTOPET 1E U.S.P. petrolatum of medium melting point and medium to firm consistency, is employed as the base for the majority of pharmaceutical ointments, depending on the color of the finished product desired.

PROPERTY	AVERAGE TEST: Alba PROTOPET	White 1S and Yellow 1E PROTOPET	PERFECTA	SIGNIFICANCE
Saybolt Melting Point °F.	115/135	115/135	135/155	Proper melting point—will not become too hard in cold weather or thin out in warm weather.
ASTM Consistency	160/190	160/190	160/190	Uniform soft or medium consistency—adaptable to ointments of varying degrees of hardness.
Color, Lovibond*		5Y-35Y1-45**	1y Y	Color ranges from white to amber—suitable for any pharmaceutical ointment.
NPA		1-2Y1-1**	White	
Odor			None	Will not impart odor to ointment.
Stability Test				Will not become rancid, non-gumming—long "shelf life."

*Alba, White 1S and **Petrolatums, in addition there are other U.S. Pharmacopoeia or N

Typical Ointments:

The following ointments, U. S. Pharmacopoeia XIV:

Ammoniated Mercury
Boric Acid
Chrysarobin
Coal Tar

In addition there are o
U. S. Pharmacopoeia or

L. SONNEBOR

Gives complete information on properties and characteristics of the Petrolatum best suited for utilization in each application or process listed below. Also suggested formulations.

Check Coupon Below for Data on PETROLATUMS for Use in These Applications

1. Cosmetic Creams
2. Hair Pressing Oil*
3. Hair Preparations**
4. Industrial Protective Creams
5. Pharmaceutical Ointments

*Special High Smoke Point Mineral Jelly
**Including Butch Cream or Hair Stick

Sonneborn

L. SONNEBORN SONS, INC.
New York 10, N. Y.

Specialists in White Oils and Petrolatums for More than Half a Century

White Oil, Petrolatum & Sulfonate Div., Dept. D-98
L. SONNEBORN SONS, INC.,
300 Fourth Avenue, New York 10, N. Y.

Please send me the Technical Data indicated below (circle number corresponding to application in list above).

1 2 3 4 5

Name.....Title.....

Company.....

Address.....

City.....Zone.....State.....

SCENTS
PFW
POLAK'S FRUTAL WORKS INC., MIDDLETOWN, N.Y.
AMERSFOORT, HOLLAND · PARIS, FRANCE · BREMEN, GERMANY · BRUSSELS, BELGIUM · SOFLOR LTD. · PERIVALE, ENGLAND

When Vitamins get together...

it's a Riot!

But... NYQ DRY VITAMINS

behave like little angels!

Write today for samples of these NYQ DRY VITAMINS!

DRY VITAMIN A_1
DRY VITAMIN D_2
DRY VITAMIN A and D_2
DRY CYANOCOBALAMIN
DRY COBALAMIN CONCENTRATE
DRY VITAMIN E ACETATE 25%
DRY VITAMIN E ACETATE 33%
(Granular and Fine Powder)

NYQ *gelatin*-encapsulated vitamins minimize potency-robbing inter-reactions among vitamins and other ingredients in your preparations.

You get uniform dispersion so that every tablet contains the proper amount of each vitamin. Loss on extrusion is low, potency is protected and stability is assured for longer shelf-life.

Need for costly overages is greatly reduced.

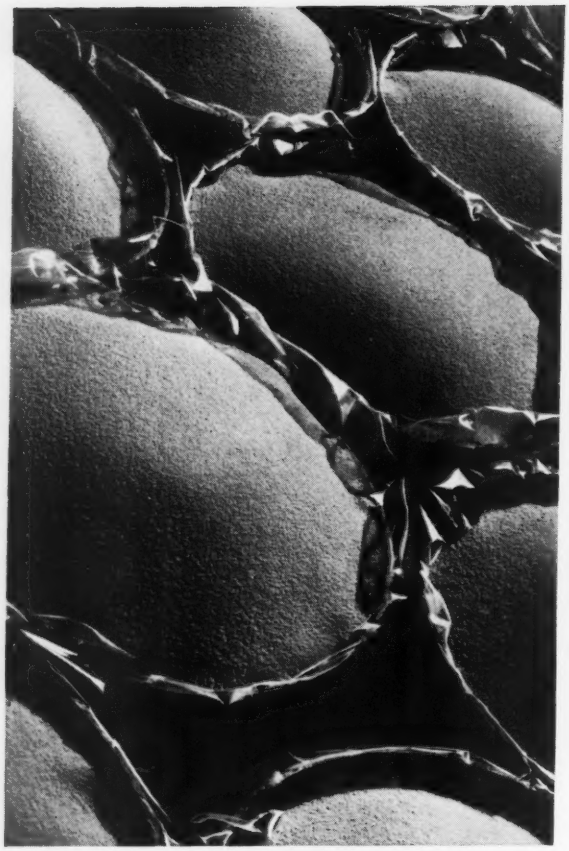
Very important: the *gelatin* matrix in NYQ dry vitamins doesn't interfere with physiological availability! It's ideal for soluble tablets, too, and won't cause unpleasant after-taste. IDEAL FOR BABY FORMULAE.

We will gladly submit generous samples and suggest formulation techniques. Deliveries are always made immediately from five coast-to-coast stockpoints.

NYQ®

NEW YORK QUININE & CHEMICAL WORKS

50 CHURCH STREET, NEW YORK 8, N. Y. • 729 WEST DIVISION ST., CHICAGO 10, ILL.



This is **vitamin A**

but so is this

Let us not be carried away.

Even in the first flush of zeal over our new dry product, *Myvax® Dry Vitamin A Palmitate*, we must not for *one minute* allow you to forget that we also make *Myvax Vitamin A Acetate* and *Palmitate* in oil forms.

These are still the forms of vitamin A that lots of customers want. Who are we to frustrate a man with an order in his hand?

You can get *Myvax Vitamin A* in potencies up to one million units per gram, as fast as we can wheel it from blending room to waiting truck, train, or plane. This is one aspect of our service. There are others.

What's more, *your* vitamin preparation never finds itself competitively jostled, in the physician's mailbox or on the pharmacist's shelf, by one of *ours*. Knowing all there is to know about vitamin A is our job. Successful marketing of dosage forms is for our customers, not us.

To test the soundness of this way of doing business, write to ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago, and Memphis • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

P.S. What about *Myvax Dry Vitamin A Palmitate?* We believe it to be the finest dry vitamin A that has come down the pike. Finest because it has the inherent stability of the palmitate ester which, among other things, gives us test results like this: in tablets, under the extreme test condition of 79% relative humidity at room temperature, 94% of the original vitamin A potency remained after 60 days' exposure. Other good things, too—excellent crush resistance . . . right particle size . . . availability with vitamin D at several potencies. Why not let us send you a bulletin on it?

leaders in research and production of vitamin A

DPi

Also . . . vitamin E . . . distilled monoglycerides . . . some 3700 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

FIRST PRODUCERS OF CERTIFIED COLORS

H. KOHNSTAMM & COMPANY Inc.

ESTABLISHED 1851

89 PARK PLACE, NEW YORK 7 • 11-13 E. ILLINOIS ST., CHICAGO 11 • 2632 E. 54 ST., HUNTINGTON PK., CALIF.

BRANCHES IN OTHER PRINCIPAL CITIES OF THE U.S.A. AND THROUGHOUT THE WORLD

Want new notions for new lotions?

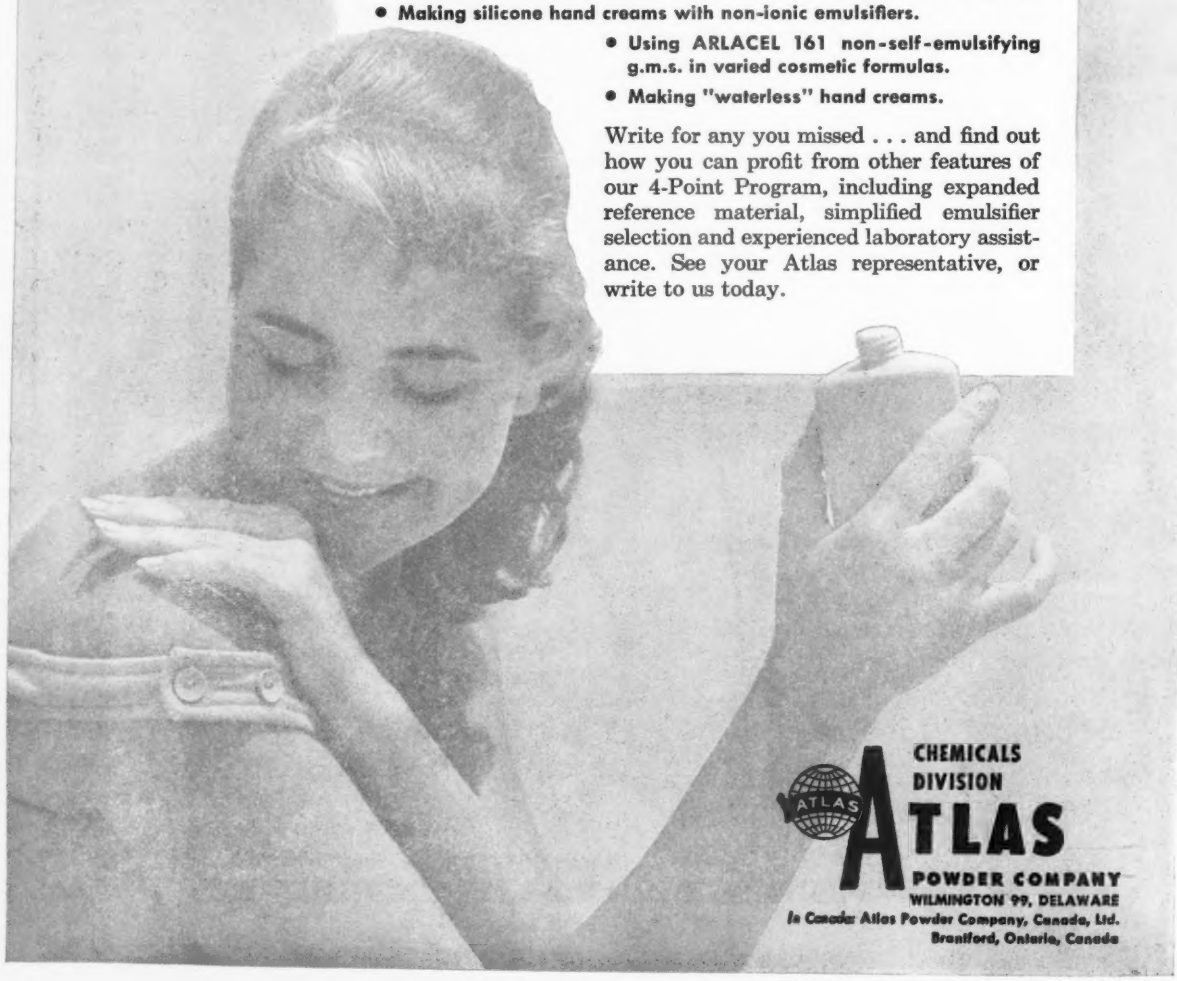
See Atlas Cosmetic Bulletins—
spot news from our 4-Point Program for helping formulators

Looking for inspiration for future products? You'll find plenty of practical formulating ideas, and up-to-date data on materials and trends in the Bulletins we send you regularly as part of our new program of expanded assistance to formulators. Our latest Bulletin, for instance, gives you tips on formulation of sun-tan lotions to help you start your lab work for your next season's sales, based on sunscreen agents recommended by the U. S. Public Health Service.

Other Atlas Bulletins can help you in . . .

- **Formulating cologne-type anti perspirant sticks.**
- **Simplifying and improving formulation of neutral and acid creams and lotions with new ARLACEL® 165 acid-stable self-emulsifying g.m.s.**
- **Making silicone hand creams with non-ionic emulsifiers.**
- **Using ARLACEL 161 non-self-emulsifying g.m.s. in varied cosmetic formulas.**
- **Making "waterless" hand creams.**

Write for any you missed . . . and find out how you can profit from other features of our 4-Point Program, including expanded reference material, simplified emulsifier selection and experienced laboratory assistance. See your Atlas representative, or write to us today.



CHEMICALS DIVISION
ATLAS
POWDER COMPANY
WILMINGTON 99, DELAWARE
In Canada: Atlas Powder Company, Canada, Ltd.
Brantford, Ontario, Canada

"And here's something the boss's wife dreamed up to help us select our next research problem."

Keeping Posted

Searle Health Center

John G. Searle, president of G. D. Searle & Co., and vice-president of the board of trustees of Northwestern University, is giving the university Searle Health Center, which will be erected on the Evanston campus at a cost of $800,000. This is part of the university's $138.5 million long-range development plan announced in 1955. Construction will begin in March 1959, and dedication is scheduled for January, 1960.

Toni's Grant-Fellowships

The Toni Company is expanding its grant-fellowship program "because we are deeply indebted to our educational institutions," says Raymond E. Reed, vice-president in charge of technical operations. "They educate and train the technically qualified, imaginative, scientific personnel needed for the successful prosecution of industrial research programs," he added. Toni's own research activity is the most extensive in the world devoted to cosmetic sciences, says Mr. Reed. Toni, in its short history, has already invested over $12 million in product research and evaluation, he claims. The Toni program, designed not only to aid qualified students but schools and academic research as well, provides grants totaling approximately $50,000 annually to six leading midwestern educational institutions.

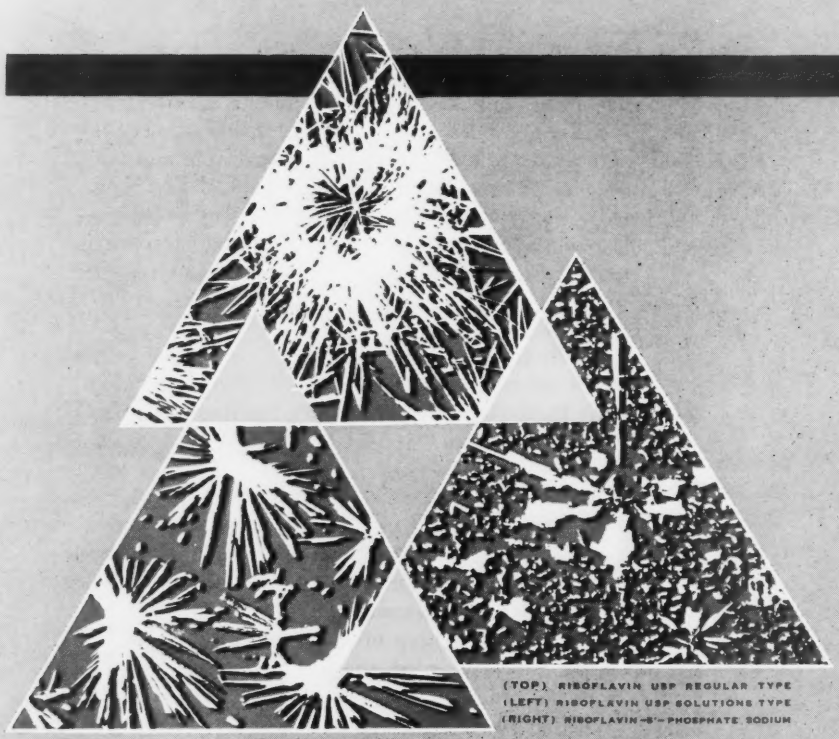
Norwich Defends Pepto-Bismol

In an injunction granted Norwich Pharmacal Company in the U. S. District Court, Sterling Drug, Inc., is restrained from "simulating the pink color of Pepto-Bismol in its product, Pepsamar." Judge Stephen W. Brennan adds that "If Sterling, however, desires to continue to use the pink color of its product, Pepsamar, same shall be distributed in the blue colored glass bottle, (or other colored container concealing the pink color of its contents) which is used by Sterling in the marketing of many of its products. The injunction so granted shall restrain the defendant from the use of the descriptive pink color in the advertising of its Pepsamar product."

In the decision in the suit brought by Norwich in February 1956, it is stated that "In 1955, the sales of Pepto-Bismol amounted to about $7,600,000 which represents about 30 per cent of the total of Norwich's sales for that year." It is also stated that advertising expenditures were more than $2 million in each of the years 1954 and 1955. The decision continues:

"Sterling's product, Pepsamar, is practically a carbon copy of Pepto-Bismol insofar as its ingredients, color and its intended functions are concerned . . . After an investigation into the sales practices of Norwich and the sales records of Pepto-Bismol and an analysis of the product itself, the laboratory department of Sterling was instructed by its president to manufacture a product 'as near as possible to Pepto-Bismol.' This included the copying of the pink Pepto-Bismol color as closely as possible . . . Sterling admits in its brief, 'as to the product itself, the stuff inside the bottle, Sterling has frankly admitted that its product was intended to be very similar to Pepto-Bismol, just as close as the laboratory could make it.' . . . Up to the time of trial, the sales of new Pepsamar amounted to about $90,000 with about one-half of those sales in the State of Ohio. The Sterling Company has spent about $512,000 in advertising and sales promotion of its new product.

"The contention of Norwich here is not directed to the copying of the formula for its product, Pepto-Bismol, but that it contends Sterling has so imitated same in its non-functional attributes and advertised and marketed its new Pepsamar in such a manner as to confuse the buying public, to destroy Norwich's property rights to a degree which would be considered unfair. . . . Its contention is based principally upon



(TOP) RIBOFLAVIN USP REGULAR TYPE
(LEFT) RIBOFLAVIN USP SOLUTIONS TYPE
(RIGHT) RIBOFLAVIN-5'-PHOSPHATE SODIUM

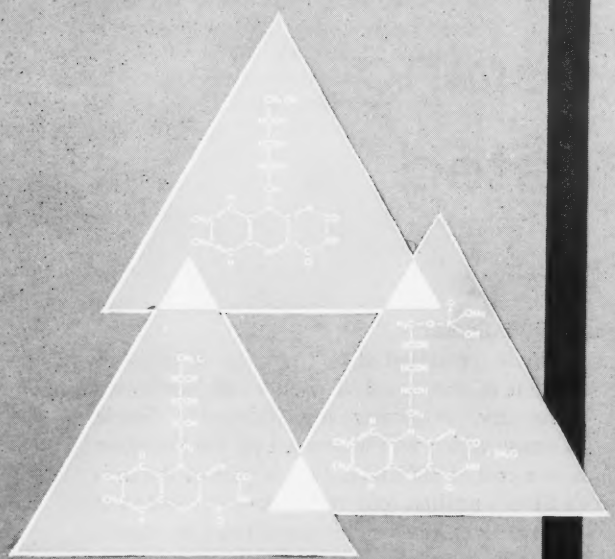
VITAMIN B_2 COMES RIGHT FROM ROCHE

Various types are available to meet the most exacting demands in the pharmaceutical field for tablets, capsules, dietary supplements, liquid preparations; and in the food industry for enrichment premixes and breakfast cereals. Roche has the type of riboflavin that is right for you, whenever you want it—"by the tons."

Roche originated riboflavin-5'-phosphate sodium for all solutions demanding rapid, high solubility, and stability. Among pharmaceutical manufacturers it is preferred for injectable solutions, elixirs, and multivitamin drops. A better, less bitter taste than U.S.P. riboflavin makes it advantageous for chewable tablets and other products likely to be held in the mouth. In the food field it is preferred for breakfast cereals.

The Roche synthesis achieves quality standards that meet, or even exceed the rigid U.S.P. riboflavin requirements. This assurance is insurance for you.

Trust Roche resources for a constant, unlimited supply of riboflavin. Trust Roche for quick, sure service.



ORDER *right* . . . ORDER *from Roche*

VITAMIN DIVISION

HOFFMANN-LA ROCHE INC.

NUTLEY 10, NEW JERSEY, NUTLEY 2-5000 • IN NEW YORK: OXFORD 5-1400

(Illustration represents actual crystals under high magnification, using shadow technique.)

the almost exact imitation of the color of Pepto-Bismol, the imitation of the emphasis upon the pink color which has been stressed in Pepto-Bismol advertising and is likewise stressed in Pepsamar advertising, the emphasis upon the words 'upset stomach' upon the Pepsamar labeling and in advertising, similar to the label and advertising previously used over a long period of time by Pepto-Bismol, and the splitting of the name Pepsamar into two parts upon the label, similar to the arrangement of the label of Pepto-Bismol. . . .

"It is not disputed that the pink color and the ingredient producing same have no healing value in themselves. It is designed to present a pleasing appearance to the customer and to the sufferer. It is readily understood that a disordered stomach will accept that which is pleasing and reject that which is repulsive. It is designed to aid in public acceptance. Sterling claims that it has a soothing effect upon those suffering from nervous stomach disorders. The court is constrained to find that the pink color has no functional value as the word is commonly used and understood. . . . The action of Sterling in its use of the pink color is confirmatory of the fact that its object was to imitate Pepto-Bismol rather than to improve its formula. Sterling made no tests of color acceptance. It apparently chose the same shade of pink color found in Pepto-Bismol as being the ultimate in therapeutic value if its argument is to be adopted."

FTC Charges Six Antibiotic Sellers

Simultaneously with its release of a 361-page Economic Report on Antibiotics Manufacture, the Federal Trade Commission issued a complaint against six companies making and/or selling antibiotics of the tetracycline type. The companies named in the complaint are American Cyanamid Company (Lederle), Bristol-Myers Company, Bristol Laboratories, Chas. Pfizer & Co., Olin Mathieson Chemical Corporation (Squibb), The Upjohn Company.

The companies are charged with attempting to monopolize the $330 million antibiotics industry and with fixing and maintaining "arbitrary, artificial, non-competitive and rigid" prices.

Pfizer is also charged with having made false and misleading statements to the U. S. Patent Office in order to obtain a patent on tetracycline. The Commission says that sales of this drug last year were over $100 million, and that the six companies named in the complaint account for 100 per cent of the drug's sales.

Joined with Pfizer on a charge of withholding "material and probative" information from the U. S. Patent Office in connection with the tetracycline patent were the two Bristol firms and Cyanamid. These three as well as Olin Mathieson and Upjohn also were charged with soliciting and accepting from Pfizer licenses to make and sell tetracycline knowing Pfizer had "submitted false, misleading and incorrect information" to the Patent Office in order to get its tetracycline patent.

The complaint further charges that there is no real invention or novelty in the claims for the tetracycline patent and that the claims "disclosed no patentable invention in view of the prior state of the art" at the time the initial application for it was filed. The complaint claims that the "alleged invention" was being used and sold in this country for more than a year prior to the application for the patent, and, furthermore, the subject of the patent was "obvious at the time of the filing of the respective applications for the patent to anyone having ordinary skill in the art."

Telling of the early licensing arrangements through which Bristol and Pfizer obtained rights to use Cyanamid's 1949 patent on Aureomycin to obtain the raw material for the manufacture of tetracycline, the complaint then tells that Pfizer was awarded a patent on tetracycline on January 11, 1955. "Under prior arrangements," says the complaint, Pfizer issued a license to Cyanamid to make and sell tetracycline, and in March 1956, similar licenses were granted by Pfizer to the Bristol firms and to Olin Mathieson and Upjohn.

These licensing arrangements, says the complaint, have had "the purpose and effect of unreasonably foreclosing and preventing competition in the production and sale of tetracycline and chlortetracycline."

The Commission claims that Lederle does 28 per cent of the total antibiotic business, or $92,400,000; Pfizer 23 per cent, or $75,900,000; Squibb 7 per cent, or $23,100,000; Upjohn 4 per cent, or $13,200,000; and Bristol 4 per cent, or $13,200,000.

Pfizer President John E. McKeen, in a strongly worded statement said:

"Pfizer has never engaged in a conspiracy, never misused its patents, never fixed prices, and wields no monopolistic powers. The charges that Pfizer misled the Patent Office and withheld information are utterly baseless. The tetracycline patent application was the subject of prolonged and vigorous contests in the United States Patent Office in which all the pertinent facts were fully considered. The Commission is now attempting to second-guess the Patent Office experts. This improper procedure could destroy the American patent system and endanger the drug industry's $130 million annual research program. Today's many miracle drugs and their life-saving benefits are the direct result of vigorous competition and scientific achievements in the best traditions of American free enterprise."

W. G. Malcolm, president of American Cyanamid Company, said:

"Cyanamid has never engaged in any price fixing and has not employed any unfair method of competition or any unfair or deceptive act or practice in its pricing or its use of patents and licenses in the conduct of its antibiotic business.

"With regard to prices, the fact is that prescription

From Heyden Newport

WHERE NON-TOXICITY COUNTS
SPECIFY HEYDEN NEWPORT PARASEPTS*

Preserve your pharmaceuticals, cosmetics, and toiletries against bacterial or fungal action with PARASEPTS. They offer the following important advantages:

- Colorless, odorless and tasteless in recommended concentrations.
- Non-irritating to skin; extremely low toxicity.
- Economical — effective in low concentrations.

The purity of these preservatives is backed by over 50 years experience in producing chemicals of the highest quality.

Methyl Parasept Purified (Methylparaben, U.S.P.)
Ethyl Parasept Purified (Ethyl parahydroxybenzoate)
Propyl Parasept Purified (Propylparaben, U.S.P.)
Butyl Parasept Purified (Butyl parahydroxybenzoate)

Send for technical literature on Heyden Newport PARASEPTS.
Technical grades also available for industrial use.
Heyden Newport Chemical Corporation, 342 Madison Ave., New York 17, N. Y.

*Esters of Parahydroxybenzoic Acid. • Trade Name "Parasepts" Reg. U.S. Pat. Off.

HEYDEN NEWPORT

Where tradition meets tomorrow in chemical progress

pharmaceuticals, including antibiotics, have been almost alone among commodities in resisting the upward price trend of recent years. Wholesale prices of pharmaceuticals were actually lower in 1957 than they were in 1949, according to the U. S. Department of Labor Statistics.

"Antibiotics, including the newer 'broad-spectrum' types, have contributed to this price performance. The first broad-spectrum antibiotic, Aureomycin (chlortetracycline), first introduced by Cyanamid in 1948, dropped 65 per cent in price during the following eight years. When Cyanamid introduced an improved broad-spectrum antibiotic, Achromycin (tetracycline), in 1953, it was placed on the market at the same price as that of Aureomycin's then selling price. "In the following year sales of Aureomycin dropped more than $25 million—an indication of the high rate of product obsolescence in the pharmaceutical industry. This factor, plus the intense competition in our industry, requires a tremendous outlay for pharmaceutical research, which for the Company over the last five years amounted to more than $50 million. This effort can be supported only by funds derived from the relatively few products which have been successful in meeting a wide-spread need.

"The Company has spent millions of dollars in research on cancer, heart disease, polio and other major health problems without having yet developed successful commercial products. For example, Cyanamid cancer research, which currently includes a screening program handling more than 2,000 compounds a year, has cost over $5 million since 1939. This year further substantial amounts will be spent on the problem by the Company, yet the five cancer drugs sold by Lederle in 1957 accounted for only $53,000 in sales.

"It is difficult to discuss in a few words all the implications—the uncertainty of pharmaceutical research; the industry's obligation to produce and maintain unprofitable drugs because of a human need; the intricate interrelationship among many products, antibiotics as well as others, and the simple fact that in a free economy private investment is feasible only when there is reasonable profit to compensate for the risks involved."

John C. Leppart, senior vice-president of Olin Mathieson Chemical Corporation in charge of the E. R. Squibb & Sons Division, commented:

"We will prove at the proper time that this complaint is completely untrue and unsupported by any facts.

"Squibb's principal broad-spectrum antibiotic, Mysteclin-V, contains tetracycline which is purchased from others. But it is improved by the addition of a unique and valuable antifungal antibiotic which required more than four years of development by Squibb, more than $1 million in research expenditures, and extensive manufacturing facilities before it could be offered to the medical profession. To an industry whose mission in health and whose discovery of constantly new medications comes from tremendous investments in research and development, and whose profit from the ethical drugs it discovers averages less than a cent a dose, The FTC's allegations are grossly unfair.

"It is ironic and almost tragic that the pharmaceutical industry and Squibb's part in it with its tremendous record of accomplishment finds itself confronted by charges and implications that are no part of its attitude or actions. The victories gained in just the past 20 years through antibiotics discovered, and constantly improved and made available in large quantities at low cost to everybody are a matter of extraordinary medical record."

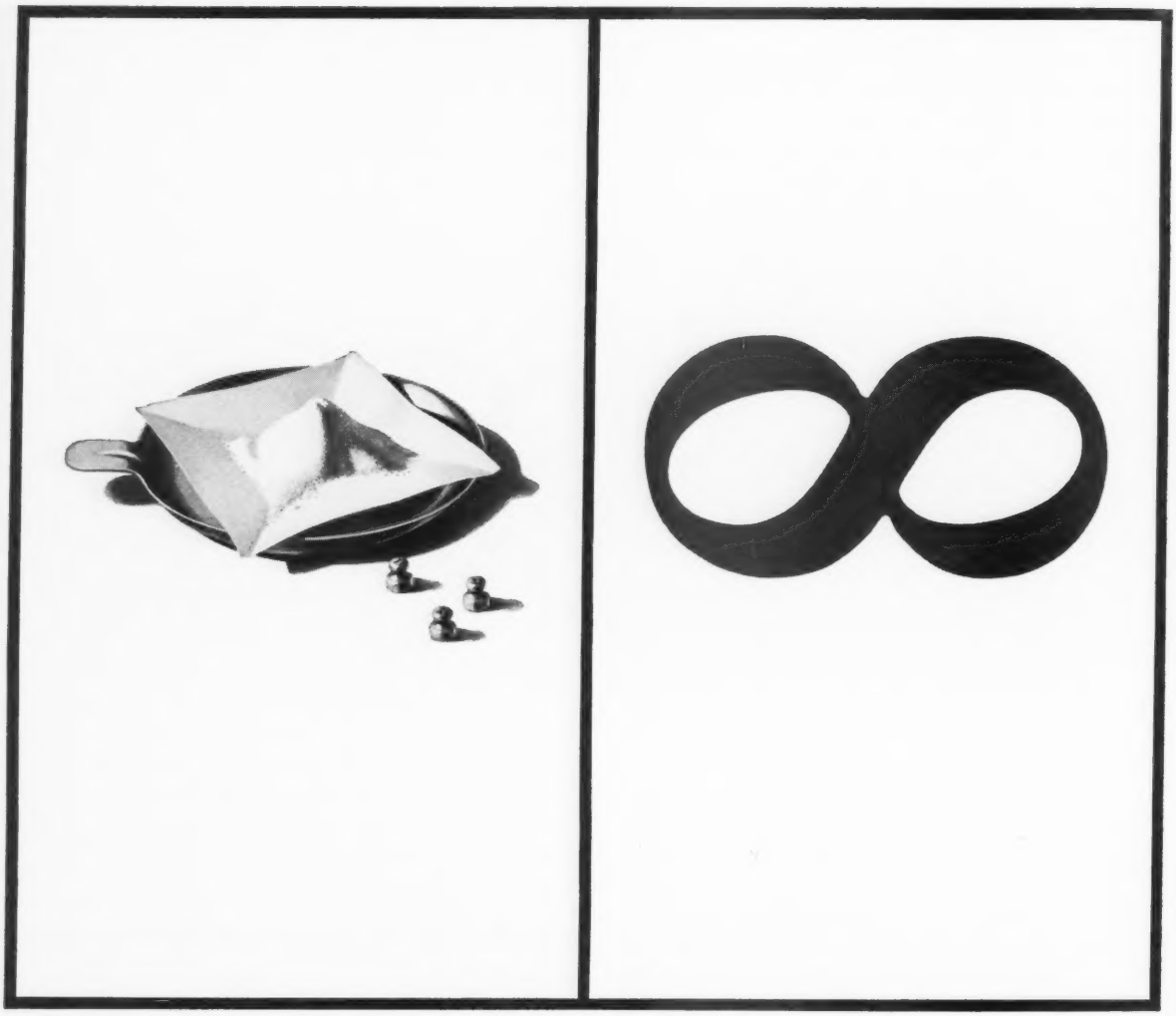
Restricted Sales in Minnesota

The decision of the Trial Court in the case brought by the Minnesota Board of Pharmacy against Red Owl Stores and Groves-Kelco has been reversed by the Supreme Court of that state. The suit sought an injunction to restrain the defendants from selling, except under the supervision of a pharmacist, Bufferin, Sal Hepatica, Bromo Seltzer, Ex-Lax, Bromo Quinine, 4 Way Cold Tablets, Lysol, Alka-Seltzer, Murine, Pepto-Bismol, Pinex, Castoria, Vick's Va-Tro-Nol, Vick's Cough Syrup, Anacin, Aspergum, Feen-a-mint. At the conclusion of the State's case in the original trial, the defendants moved for dismissal on the ground that the State had not made a showing sufficient to justify the issuance of an injunction; that the statute did not provide injunction as a remedy but instead declared a violation of the Pharmacy Act to be a misdemeanor and authorized the County Attorney to prosecute; that in absence of a showing that public health was endangered the Court should not by-pass the procedure authorized by the Statute. The Trial Court granted the motion and dismissed the action.

The State then made a motion for amended findings of fact, or in the alternative, for a new trial. The Court denied that motion. Now the Supreme Court has reversed the ruling and has granted a new trial to the State. This means that the State may proceed by suit for injunction, and in the event of so proceeding the case would be tried on its merits rather than on the question of appropriate procedure.

Red Owl operates 48 supermarkets and 200 retail outlets known as Red Owl agency stores in Minnesota and several nearby states. Groves-Kelco, a wholesale distributor of non-food items, serves Red Owl and some 1,200 other retail outlets.

In rendering the majority opinion of the Supreme Court, Associate Justice William P. Murphy pointed out that the subject of public health is deeply involved with the sale of all drugs. He held that the State had established a prima facie case that the uncontrolled sale of drugs and medicines is adverse to public health. The Minnesota State Pharmaceutical Association takes the view that this means that in the opinion of the Supreme Court it was not necessary for the



QUALITY UNLIMITED The volume varies, the quality remains . . . In large or small quantities, Upjohn maintains the same exacting standards in the preparation of chemicals in bulk as in the compounding of fine pharmaceutical products.

available now in bulk:

CORTISONE ACETATE U.S.P.
HYDROCORTISONE U.S.P. *Acetate or Alcohol*
FOLIC ACID U.S.P.
NEOMYCIN SULFATE U.S.P.

Upjohn booklet on *New Drug Applications* available on request. The Upjohn Company Chemical Sales Division Kalamazoo, Michigan

Upjohn

state to prove the danger to public health; that the burden of proof rested with the defendants to prove that the drug items they sell are not dangerous.

The Association says further: "If the State of Minnesota is awarded the decision in the upcoming re-trial in Hennepin County District Court, it will then seek an injunction prohibiting further sale of drugs and medicines in all retail outlets except those licensed and authorized by the State Board of Pharmacy."

However, we quote from the dissenting opinion of the Supreme Court:

"What has been said heretofore applies solely to the procedural aspects of the case. There are other considerations which justify comments upon the merits. If it is true that it is inherently dangerous for the public to be able to purchase drugs in a self-service fashion, then it is apparent that curing the alleged evil which now occurs in supermarkets and grocery stores solves only part of the problem. We cannot shut our eyes to the fact that almost any item which does not require a prescription may be purchased in the same manner in a drug store without any restriction at all upon its quantity. Moreover, it is a matter of common knowledge that in many instances it is not a pharmacist who dispenses the merchandise but rather an inexperienced employee or the customer himself in a self-service manner."

This action started three years ago.

Pfizer Corporate Advertising

Chas. Pfizer & Co. has inaugurated a corporate advertising program in national magazines to tell the story of its growth and diversification. The campaign is appearing in the *Saturday Evening Post*, *Time*, *Newsweek*, *U. S. News and World Report*, *Harpers*, and *Atlantic*. Six advertisements tell the Pfizer story during a concentrated five-month period, which started in August in the four weeklies, and in September in the two monthlies. The new company slogan, Science for the World's Well-Being, is prominently displayed as the theme for the copy that details achievements of the company in the research and development of products that contribute to human welfare.

The advertising was created by McManus, John & Adams, a Pfizer agency for seven years, handling the chemical division.

Two Detail Staffs

A. H. Robins Co., having acquired Whittier Laboratories, Chicago is expanding the sales force of Whittier as rapidly as possible, having already added additional detail men to the staff. One reason why Robins purchased Whittier as a wholly-owned subsidiary was to have another firm to market additional products being developed by Robins' research program. "There is already a heavy load for the Robins' detail men to handle," said E. Clarieborne Robins, company president.

Robins is not the first firm to take this approach, but we wonder what effect this doubling of calls by detail men is going to have on the attitude of doctors and on the effectiveness of detail men in general since they have become so much more numerous not only as to individual companies, but also as to the number of companies employing them. The attempt of many drug manufacturers to broaden the classifications of pharmaceutical products which they offer to the medical profession is a main factor in this doubling of detail staffs operating under different company names.

Gantricin Tablets—24,000 Miles

Roche Laboratories says: "If all the Gantrisin tablets produced and used since the introduction of this single soluble sulfonamide were placed 'end to end,' the distance would exceed 24,000 miles—more than enough to encircle the globe at the equator." The number of tablets included in this calculation is more than 3 billion (liquids and other forms not included). We well recall the time that Hoffmann-La Roche was preparing to introduce this product. It was in the days when the antibiotics had all but knocked the sulfas out cold. Someone from Roche asked us whether we were surprised at their undertaking to market a new sulfa drug at that time. However, he added, "We happen to know what we have." It certainly proved to be the case.

Chesebrough-Pond's to Clinton

Chesebrough-Pond's Inc. is to make a $2.5 million expansion of the firm's plant at Clinton, Conn. and consolidate all domestic manufacturing there. This move will eliminate production and packaging facilities at McKees Rocks, Pa., and Perth Amboy, N. J., (Chesebrough Vaseline products), as well as in New York City (Seeck & Kade, Pertussin). Refinery operations for Vaseline will remain in Perth Amboy.

Expansion of the Clinton plant calls for construction of a new one-story wing to the present three-story building, as well as expansion of laboratory, warehousing, shipping, and employee facilities. An exhaustive engineering and distribution study indicated that the Clinton facilities were best suited from an engineering and economic point of view.

Vick Buys Lavoris

Vick Chemical Company is acquiring The Lavoris Company by the issuance of 196,492 shares of Vick stock which will be given to Lavoris stockholders on the basis of four shares of Vick for each seven shares of Lavoris. The agreement becomes effective October 1. The Lavoris Company of Minneapolis, founded in 1902, makes and sells in the U. S. and Canada, Lavoris, one of the top selling mouthwashes and gargles. Lavoris sales have increased 85 per cent in the last five years. On the basis of present market value of Vick stock, the price for Lavoris would be

above $13 million.

According to Smith Richardson Jr., Vick president, "Its acquisition gives Vick a position in the important and expanding proprietary mouthwash market and broadens our proprietary business outside the colds area. It is another step in our continuing diversification and expansion program in the entire health field. This program, begun in 1938, has been an important factor in the company's 12-fold sales growth in the last 20 years, and in giving Vick substantial diversification in all four major areas of the drug field—ethical drugs, proprietary drugs, veterinary drugs, and fine chemicals."

Revlon Sued by Farberge

Revlon, Inc., Charles Revson, and The Princess Marcella Borghese, Inc., are charged with unlawful and unfair competition in a suit brought last month by Juliette Marglen, Inc., a cosmetic firm wholly owned by Farberge, Inc. Included in the complaint are charges that Borghese, a corporation subject to the control of Revlon, marketed imitations of Marglen's unique oval lipstick case and other products. Also, that soon after Marglen created and marketed a nail polish formulated from 24-carat gold, Revlon placed on the market a nail polish which it falsely claimed to be both "the first nail polish made from gold" and "formulated from gold."

Marglen seeks a preliminary and permanent injunction restraining Borghese from packaging and selling lipstick or nail polish in containers similar to those of the plaintiff. It further seeks to enjoin Revlon from advertising that its nail polish is formulated from 24-carat gold. It also seeks to enjoin Borghese from claiming that its products are derived from the beauty formulas of the Borghese princesses or that its lipstick case is derived from an Italian design or that such case was used in Italy prior to its use here.

Commercial Solvents Sues on Patent

Commercial Solvents Corporation has filed suit in Federal Court, Eastern District of Iowa, against Grain Processing Corporation charging violation of Commercial Solvents' Patent No. 2,809,892, issued October 15, 1957 for the manufacture and sale of zinc bacitracin feed supplement, marketed by CSC under the trademark name of Baciferm.

Miles Doubling Citric Capacity

Miles Laboratories has awarded a $3.5 million contract for construction of a new citric acid plant which will double the company's citric acid capacity when it goes on stream in mid-1959. A commercially proven submerged fermentation process, similar to the process used in the production of antibiotics, will be used. This process was developed by the company's research department, according to Miles.

The Federal Trade Commission has been criticized by the Blatnik subcommittee of the House of Representatives for its lack of action in controlling advertising of weight-reducing products, tranquilizers, and dentifrices. The reports on these products call for trade practice conferences to be initiated without delay. It is also suggested that Congress should study the question of whether or not the FTC is the proper agency to have control over advertising of these products. The congressmen would rather see the Food and Drug Administration have this authority, saying:

"Consideration should be given by the appropriate legislative committees of the Congress to determine whether statutory changes are required for more effective enforcement action in the field of false and misleading advertising."

In the case of tranquilizers, the report says that "virtually all witnesses heard by the subcommittee" advised that the transfer be made. As for dentifrices, the American Dental Association made the same suggestion.

Soap and Detergent Sales Recover

Sales of soaps and detergents bounced back during the second quarter of the year to bring the half year totals to within 1.3 per cent of the record sales established during the first half of 1957. Manufacturers participating in the quarterly Sales Census conducted by the Association of American Soap and Glycerine Producers, representing a very substantial portion of the industry's volume, record total soap and detergent sales of 1,965,477,000 pounds, compared with 1,991,695,000 pounds for the first six months of 1957. Dollar sales for the first half of 1958 totaled $495,611,000, up 3.9 per cent over the first half of 1957.

Sales of synthetic detergents, solids and liquids, representing 72 per cent of the total market, amounted to 1,427,280,000 pounds, valued at $349,024,000 up 1.7 per cent over 1957 in tonnage and 7.8 in dollar value. Sales of liquid detergents amounted to 202,344,000 pounds, demonstrating a continuing growth in popularity with a 25.2 per cent increase over the first half of 1957.

Soap sales, solids and liquids, for the first half of 1958 totaled 538,197,000 pounds, off 8.5 per cent from the first half of 1957. Dollar value totaled $146,587,000, down 4.4 per cent from the same period of 1957.

Food Additive Bill

The Food Additive bill, giving the Health, Education and Welfare Department specific authority to control additives to foods, almost missed passage in the last days of Congress. When it came before the Senate, Senator Dirkson (Rep., Ill.) offered a "non-controversial" amendment to it—the highly controversial measure to exempt baseball from the antitrust laws. Several senators jumped into the fray, convinced Senator Dirkson to withdraw his amendment, and the bill was passed.

NATIONAL® CERTIFIED COLORS
make medicines easier to take !

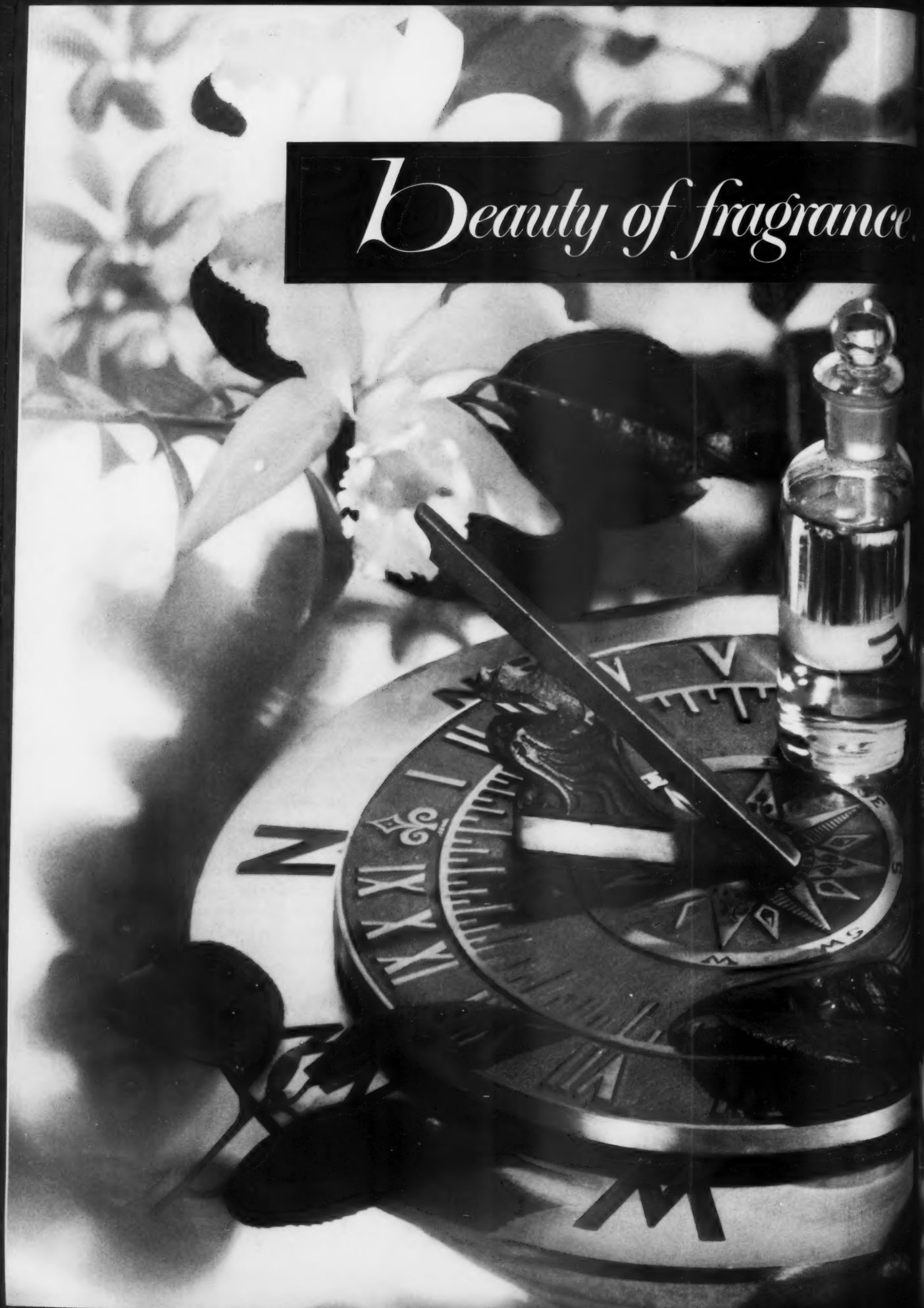
They add eye-appeal that enhances palatability. And their unfailing uniformity helps to build confidence in the consistent quality of your product.

Color formulations based on National Certified Colors are always precisely reproducible, lot after lot. National Certified Colors are manufactured to quality standards that are comparable to the high levels maintained by the pharmaceutical industry itself. Their shade, strength and chemical composition never vary.

With more than 50 years experience, we fully understand your requirements and will gladly formulate colors for your product lines.

NATIONAL ANILINE DIVISION
40 RECTOR STREET, NEW YORK 6, N. Y.
Akron Atlanta Boston Charlotte Chattanooga Chicago Greensboro Los Angeles
New Orleans Philadelphia Portland, Ore. Providence San Francisco

Allied Chemical


Beauty of fragrance

ce. made-to-measure for your success!

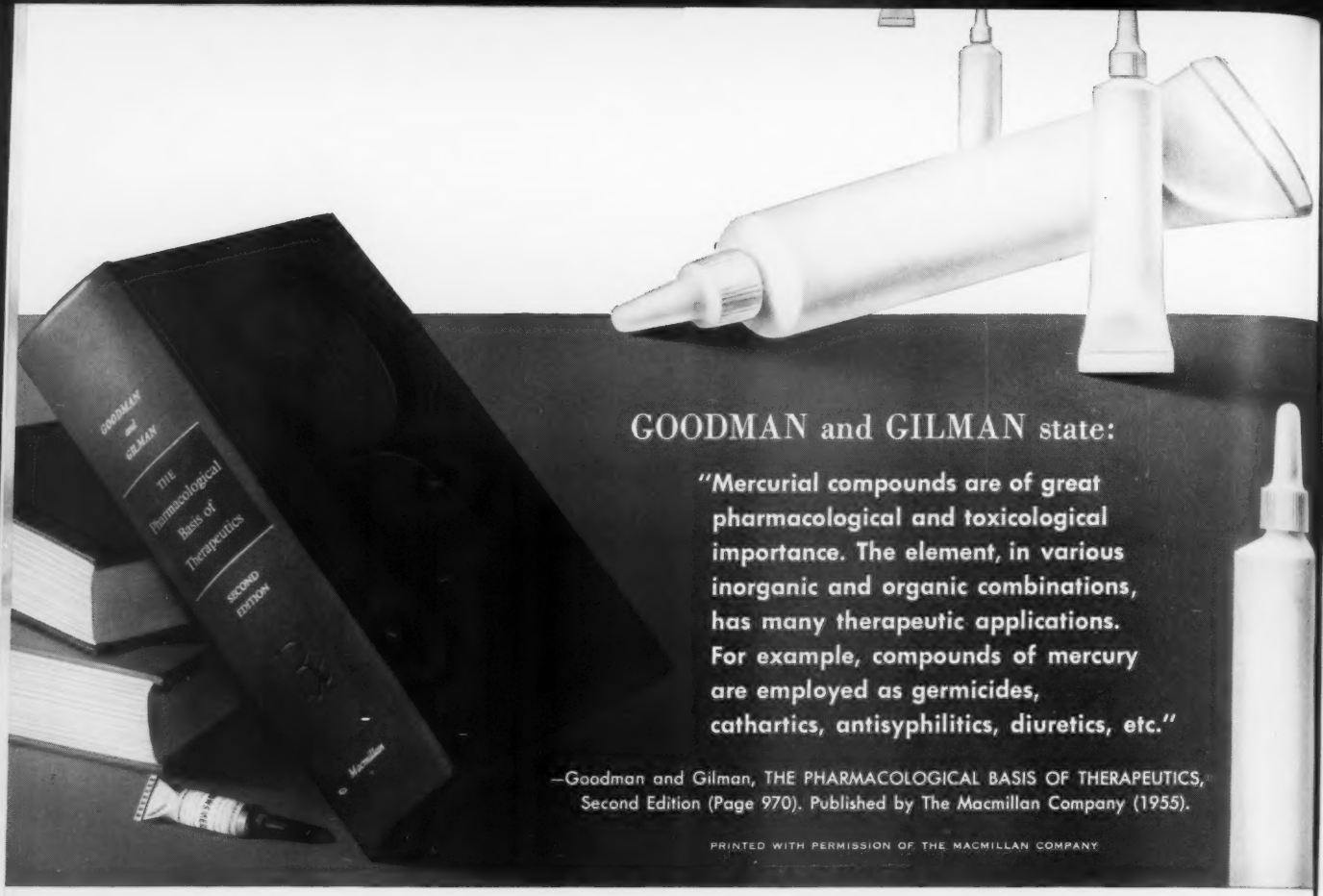
eauty of fragrance is elusive...
indefinable...yet vital to the success of
a perfume or cosmetic!

It takes imagination to conceive a beautiful,
original fragrance...skill and knowledge
to give it exactly the
right distinction and character.

Givaudan's imagination, skill and knowledge
are reflected in many successful creations.
They can provide you with
matchless fragrances—made-to-measure
for your success!

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street • New York 36, N. Y.

GIVAUDAN



GOODMAN and GILMAN state:

"Mercurial compounds are of great pharmacological and toxicological importance. The element, in various inorganic and organic combinations, has many therapeutic applications. For example, compounds of mercury are employed as germicides, cathartics, antisyphilitics, diuretics, etc."

—Goodman and Gilman, THE PHARMACOLOGICAL BASIS OF THERAPEUTICS, Second Edition (Page 970). Published by The Macmillan Company (1955).

PRINTED WITH PERMISSION OF THE MACMILLAN COMPANY

Mallinckrodt

. . . MANUFACTURED TO MAKE FORMULATING EASY

Lot-to-lot uniformity and consistent smoothness of *Mallinckrodt Mercurials* are of great importance in trouble-free processing of pharmaceutical formulations.
For instance, the particle size of Mercuric Oxide Yellow NF for Ophthalmic Use is controlled to minus three microns.

Mercuric Acetate, *used as an intermediate in the manufacture of organic diuretics.*

Mercuric Oxide Yellow NF, *used in antiseptic eye preparations.*

Mercurous Chloride Mild NF, *used as a cathartic and local antiseptic.*

Mercuric Chloride USP, *used as a disinfectant.*

FOR QUALITY IN YOUR FORMULATIONS

SPECIFY

MERCURIALS
BISMUTH COMPOUNDS
CALCIUM GLUCONATE
IODIDES
IRON SALTS
MAGNESIUM TRISILICATE
PHENOBARBITAL

SECOND & MALLINCKRODT STREETS, ST. LOUIS 7, MO. • 72 GOLD STREET, NEW YORK 8, N. Y.

CHICAGO • CINCINNATI • CLEVELAND • DETROIT • LOS ANGELES • PHILADELPHIA • SAN FRANCISCO

IN CANADA: **MALLINCKRODT CHEMICAL WORKS LIMITED** • MONTREAL • TORONTO

The following is abstracted from the Federal Trade Commission's "Economic Report on Antibiotics Manufacture" available from the Superintendent of Documents, U. S. Government Printing Office, Washington, 25, D. C. for $1.00. This 361 page report contains a wealth of information and our space limitations permit only the reproduction of salient data. The abstracting is for the purpose of presenting interesting and useful data only; for arguments leading to conclusions, the original report must be consulted.

COURTESY LEDERLE LABORATORIES

ANTIBIOTIC ECONOMICS

Between 1948 and 1956 total output of all antibiotics increased from 240,000 to 3,081,000 pounds. Penicillin accounted for 65 per cent of the total in 1948 and 34 per cent in 1956. Streptomycin accounted for 34 per cent and 5 per cent in the 2 years, and dihydrostreptomycin for 1 and 16 per cent. The first broad spectrum antibiotic was introduced in December 1948. In 1956 the 4 drugs now in the broad spectrum group accounted for 39 per cent of total antibiotics production. More than half of this broad spectrum production, however, went into animal feed supplements. The remaining antibiotics in 1956 consisted of erythromycin, 2 per cent of the total; bacitracin, nystatin, and novobiocin, 2 per cent when taken together; and various minor products, 2 per cent.

Seventeen salts of penicillin and 22 other antibiotic substances have been produced at one time or another since 1948. Eleven penicillins and 18 other substances were being produced in 1956. Of this number, four penicillins and four other substances were introduced in 1956.

Due to price differences, antibiotics rank in dollar sales in a different order than in physical output. Counting only sales from the manufacturers' own production, which were approximately 90 per cent of total sales in 1956, dollar totals came to $165 million for the broad spectrum antibiotics, $67 million for penicillin, $24 million for streptomycin and dihydrostreptomycin, $18 million for erythromycin, and $27 million for all others.

The peak year of manufacturers' dollar sales was 1951. Between 1951 and 1956 aggregate production of antibiotic substances doubled, but total dollar sales decreased. This was largely caused by falling prices for the older antibiotics and the development of new, non-medical uses at lower prices for both older and newer antibiotics. Seventy-two per cent of volume of antibiotics production in 1956 was of medicinal grade, and 27 to 28 per cent of animal feed supplement grade, while the remainder went for such other uses as crop spraying and food preservation. The total value of medicinal grade sales from the companies' own production was $273 million in 1956, and that of other grades was $28 million.

TABLE 1

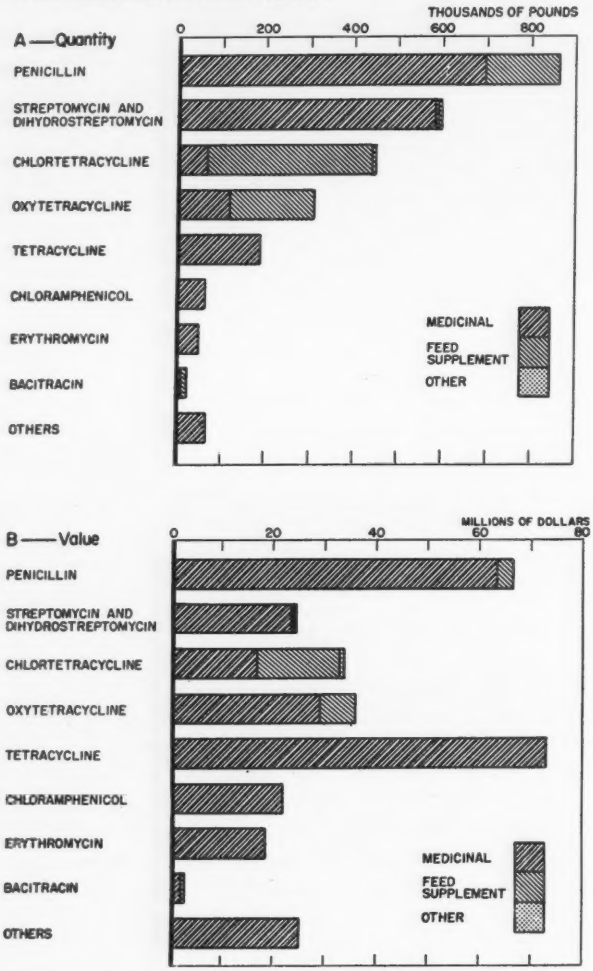
Company	Percent share of total antibiotics market	
	1950	1956
American Cyanamid	26.6	28.1
Pfizer	11.7	23.4
Eli Lilly	11.0	11.7
Parke Davis	5.9	7.3
Merck	11.0	7.2
Olin Mathieson	10.8	6.7
American Home Products	1.8	5.0
Upjohn	.7	4.4
Bristol-Myers	6.0	4.3
Abbott	2.7	1.1
Commercial Solvents	2.5	.4
Penick	0.1	.4
Others	9.2	0
	100.0	100.0

Approximately half of the total antibiotics volume in 1956 was produced by two companies: Pfizer and American Cyanamid, with 26 and 23 per cent, re-

spectively. For penicillin alone, Olin Mathieson, Merck, Lilly, and Pfizer accounted for 82 per cent of output.

Sales of Antibiotics by Type and Grade, 1956

From Manufacturers' Own Production



SOURCE: FTC DATA REQUEST, 1957.

In the first years of the industry, all its members manufactured penicillin. Two of the early penicillin salts, potassium and procaine, which were made in 1949 by 13 and 14 companies, respectively, were still made by 7 in 1956. Streptomycin and dihydrostreptomycin were made in 1949 by 8 and 7 companies, respectively, and in 1956 both products were made by 5.

Since the research work of the companies began to yield results in the middle and late 1940's, company specialties have played a larger role. In 1956 Pfizer was producing 14 antibiotics, Merck, 9, and 4 other companies 5 to 7 each. Seventeen of the twenty-nine antibiotic substances manufactured in 1956 were the product of a single company, 4 others of only 2 companies, and 2 others of 3 companies.

The industry's greatest revenue producer in 1956 was tetracycline, which alone accounted for 24 per cent of total dollar sales from manufacturers' own production. It was the leading antibiotic product of American Cyanamid and Bristol, and an important product of Pfizer.

Nineteen companies now or formerly in the industry reported having spent $270 million for new domestic antibiotics plant and equipment from 1943 through 1956. More than half—$151 million or an average of $50 million a year—was invested during the 3 years of the Korean expansion program, 1951-53. Another $92 million, averaging $15 million a year, was invested in the interwar years 1946-50, and in 1954 when the Korean program was being completed. Only $27 million, or an average of $5 million a year, was invested in the other 5 years tabulated.

Total employment in antibiotics operations of the manufacturing companies was around 35,000 in 1956. Based on returns from 5 companies, whose 1956 employment came to 17,000, 20 to 21 per cent of 1956 employees were in manufacturing; 19 per cent in "detailing"; 14 per cent in compounding and packaging; 8 to 9 per cent in research and development; and 38 per cent in administration, transportation, maintenance and other services. An increase of 23 per cent in employment rolls of 4 companies between 1950 and 1956 was sufficient to permit an increase of approximately 300 per cent in their aggregate production.

The greatest percentage increase in number of employees between 1950 and 1956 was in research and development. This is in line with the emphasis placed by the industry on the discovery of new products. Twenty-nine new antibiotic substances were introduced from 1949 through 1956, of which eight had been dropped before 1956.

Makers of medicinal antibiotics direct their most intensive promotional efforts toward physicians, since, under the law, ethical drugs (a category which includes most of the antibiotic dosage forms outside of ointments, salves and lozenges) cannot be sold unless prescribed or dispensed by a physician. Manufacturers must at the same time persuade drugstores to keep their products in stock.

Pharmaceutical manufacturers direct very little of their promotional efforts for ethical drugs to the general public, since consumers buy such drugs on prescription and do not make their own choices between them. The public is reached through the companies' institutional advertising and public relations programs.

Eight manufacturers reported to the Commission the following breakdown of their antibiotics selling and advertising expenses for 1956: salesmen's compensation, 44 per cent; samples, 11 per cent; advertising in periodicals, 10 per cent; advertising by direct mail, 8 per cent; other selling expenses, 27 per

COURTESY CHAS. PFIZER & CO., INC.

cent. The sum of these expenses comprised of 20.6 per cent of net sales of the 8 companies, the range being from 9.6 to 30.7 per cent. The average for 23 pharmaceutical companies covered in another survey was also 20.6 per cent, the range being from 5.0 to 42.0 per cent.

Selling representatives who call on doctors and druggists are known as detail men. Ten leading antibiotics producers selling dosage forms reported to the Commission that they employed detail men; the number employed was about 7,000.

Detailing played the leading role in the aggressive promotional campaigns that achieved rapid market acceptance for Achromycin and Terramycin, the trade names, respectively, of American Cyanamid for tetracycline and Chas. Pfizer & Co. for oxytetracycline. The first year's promotion budget for Achromycin was approximately $2.5 million, of which 42 per cent was allocated to detailing, 35 per cent to direct mail to physicians, 19 per cent to medical journal advertising, and 4 per cent to exhibits at medical meetings. During its 18-month Terramycin campaign, whch also employed direct mail, journal advertising, and exhibits at hospitals, Pfizer increased its detailing force from 8 to 300 men.

Free samples and direct mail are among the most important means of reaching physicians. When introducing its first broad spectrum antibiotic, Aureomycin, American Cyanamid shipped samples worth about $2 million to approximately 142,000 physicians. In the Achromycin campaign, a full list of the country's physicians received an average of two mailed items a week. Some of the items which go out by direct mail include expensively printed house magazines, "service material" such as anatomical drawings and printed prescription blanks, and, perhaps most frequently, brochures on the merits and use of particular products. Pharmaceutical houses also give wide circulation to reports of successful clinical studies made by their own scientists or by independent physicians at their request.

The promotion of antibiotics is conducted by the same methods as the promotion of other ethical drugs, and frequently in the same literature or on the same detail man's visits.

The channels of distribution are also the same for antibiotics and other ethical drug products. General-line drug wholesalers, and specialty-line drug wholesalers handling pharmaceuticals supply more than half the average nonchain drugstore's prescription chemicals. Most of the retail druggists handle a full line of antibiotics, including parenteral forms sold to physicians, oral forms sold on prescription to customers, and topical forms that do not require a prescription.

An estimate in 1954 placed hospital purchases of antibiotics at about $67 million, comprising a substantial fraction of the antibiotics used.

One of the most significant supply factors for each drug, in addition to the volume produced, is the number of companies competing in its manufacture and sale, and this is in turn often controlled by the patent situation.

The demand for antibiotic drugs is controlled by the incidence of the illnesses they are used to treat and by prevailing therapeutic practices. Whether an antibiotic will be used in a particular case is determined by the physician rather than the patient, and the choice is made on considerations of health rather than price. A high price will do less to discourage demand than in many other industries.

Costs of research and clinical testing are ordinarily incurred before a new antibiotic is put on the market. A manufacturer's new drugs frequently compete with its old ones.

The major manufacturers of bulk antibiotics prepare dosage forms; most of them also sell in bulk to independent firms which package dosage forms for resale under their own labels; and some make bulk sales to other manufacturers which to this extent themselves operate as packagers. In both types of bulk sale, the original manufacturer may also be selling in the dosage form market where its bulk customers are selling.

Part of this bulk sale to other manufacturers is according to term purchase contracts providing for purchase either of specific amounts, of minimum and

(*Continued on page 380*)

LANOLIN DERIVATIVES AND MODIFICATIONS

SUPPLEMENTARY REVIEW

BY GABRIEL BARNETT, COTY PRODUCTS CORP., NEW YORK 19, N.Y.

I. CHEMICAL REVIEW
II. BIOCHEMICAL ASPECTS
III. DERMATOLOGICAL ASPECTS
IV. DERIVATIVES AND MODIFICATIONS
- A. Lanolin Alcohols
  1. Ceralan
  2. Hartolan
  3. Lanethyl
  4. Nimco Wool Wax Alcohols
  5. Dusoran
  6. Cholesterol
  7. Golden Dawn Wool Alcohols
- B. Lanolin Fatty Acids
  1. Amerchol Lanolin Acids
  2. Nimco Lanolin Fatty Acids
  3. Skliro
- C. Lanolin Fatty Acid Soaps
  1. Lanamine
- D. Liquid Lanolin
  1. Lanogene
  2. Lantrol
  3. Fluilan
  4. Vigilan
  5. Viscolan
  6. Dusoline
  7. Liquid Lanolin 60
- E. WAXY LANOLIN ("de-oiled" lanolin)
  1. Lanfrax
  2. Lanwax #120
  3. Waxolan
  4. Lanocerin
- F. Esters
  Acetate esters
  1. Acetulan
  2. Modulan
  3. Ricilan C
  4. Solulan 97 and 98
  5. Lipocerina
  Higher organic acid esters
  1. Polylan
  2. Ricilan A and B
  3. Sucrolan
  4. Lanoscreen
  Isopropanol esters
  1. Isopropylan
  2. Crestalan
  3. Amerchol Isopropyl Lanolate
  4. Ethylan
- G. Ethylene Oxide Derivatives
  Ethers
  1. Solulan 16
  2. Ethoxylan 225
  3. Lanidrol
  Ether-esters
  1. Solulan 97 and 98
  2. Lanogel
  3. Ethoxylan 50 and 100
  4. Atlas G-1790
  5. Atlas G-1425, G-1441, G-1471
  6. Solan
  7. Lan-Aqua-Sol
  8. Lantox
  9. Lanfrax WS 55
  10. Water-soluble Lanolin
- H. Hydrogenated
  1. Hydrolan
- I. Solutions, Suspensions, Extracts
  1. Liquilan
  2. Lanosol
  3. Amerchol L-101
  4. Lanolin solutions
  5. Nimco Liquid Nimlesterol
- J. Lanolin Absorption Bases
  1. Alcolan
  2. Amerchol Bases
  3. Nimco Cholesterol Bases
  4. Protegin X
  5. Iso-Lan
  6. Isocreme
  7. Cremba
  8. Hydrophil
  9. Aquaphor
  10. Eucerin
  11. Sorbotex
  12. Falba
  13. Fanning Absorption Base
  14. Morningstar Absorption Base
  15. USP Absorption Base
  16. British Pharmacopeia Base
  17. Delan C-10
  18. Aquabase
- K. Special Lanolin
  1. Hychol
  2. Nimco Super Lanolin

V. SUPPLIERS
VI. REFERENCES

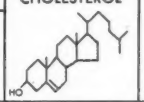
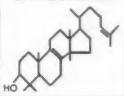
Since the publication of the author's original article on Lanolin Derivatives and Modifications[1] in Drug and Cosmetic Industry (May and June 1957), 17 new products have been added to the group, and two have been discontinued. A revised outline is presented and an expanded flow-sheet depicts the general chemistry and nature of these derivatives. The revised outline and diagram supersede the original, but for detailed data of the previously described derivatives and of lanolin chemistry, the original article should be used.

I. Chemical Review

Lanolin is classified chemically as a wax, being a complex mixture of esters and poly-esters of 33 high molecular weight alcohols and 36 fatty acids. These *alcohols* are of three major chemical groups—sterols, "triterpenoid" alcohols (trimethylated sterols), and aliphatic alcohols (the latter are subdivided into four types—normal, iso, anteiso, and dihydric alcohols). The *fatty acids* are similarly made up of the four types, analogous to the aliphatic alcohols.

The iso alcohols and acids have an isopropyl terminal group; the anteiso alcohols and acids have a *sec*-butyl terminal group; and thus far, the hydroxy acids isolated from wool wax are alpha hydroxy acids. Radell and co-workers[39] have reported experiments which indicate the presence of a delta-hydroxy acid in

TABLE I

THEORETICAL LANOLIN MONO-ESTER COMBINATIONS MAXIMUM RANDOM DISTRIBUTION			ALIPHATIC ALCOHOLS 23%				STEROLS 30%	"TRITERPENOID" ALCOHOLS 25%	
			NORMAL	ISO	ANTEISO	DIHYDRIC	CHOLESTEROL	LANOSTEROL	
			$CH_3CH_2 \ldots OH$	$CH_3CH(CH_3)CH_2 \ldots OH$	$CH_3CH_2CH(CH_3)CH_2 \ldots OH$	$CH_3CH \ldots CH(OH)CH_2OH$			
	CARBON CHAIN LENGTH		C_{10}-C_{30}	C_{18}-C_{26}	C_{17}-C_{27}	C_{16}-C_{24}	C_{27}	C_{30}	TOTAL
		NUMBER IDENTIFIED	8	5	6	5	5	4	33
NORMAL ACIDS $CH_3CH_2CH_2 \ldots COOH$	C_{10}-C_{26} EVEN NUMBERED	9	72	45	54	45	45	36	297
ISO ACIDS $CH_3CH(CH_3)CH_2 \ldots COOH$	C_{10}-C_{26} EVEN NUMBERED	10	80	50	60	50	50	40	330
ANTEISO ACIDS $CH_3CH_2CH(CH_3)CH_2 \ldots COOH$	C_9-C_{31} ODD NUMBERED	12	96	60	72	60	60	48	396
HYDROXY ACIDS $CH_3CH_2 \ldots CH(OH)COOH$	C_{12}-C_{18} and ISO-C_{18}	5	40	25	30	25	25	20	165
	TOTAL	36	288	180	216	180	180	144	1188

wool wax acids. The dihydric alcohols are a series of 1,2-diols with a branched chain. The aliphatic alcohols represent exact counterparts of the acids.

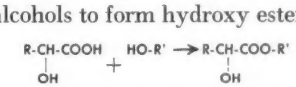
Table I summarizes the presently known composition of lanolin fatty acids and alcohols. By multiplying the number of species of all the types of acids by all those in the alcohol groups, an interesting mathematical tabulation is obtained. The product of all the acids and alcohols represents the theoretical maximum number of mono-esters, assuming complete random combination and no preferential esterification in the biosynthesis of lanolin. It is of interest to note that there have been reported twice as many iso and anteiso lanolin fatty acids as there are iso and anteiso aliphatic alcohols, the same number of hydroxy acids and dihydric alcohols, and one more normal acid than normal aliphatic alcohols. This of course is based on an incomplete knowledge of the lanolin constituents.

Due to the hydroxy acids (40-50 per cent of the fatty acids) and dihydric alcohols (4-5 per cent of the total alcohol portion), ester formation is actually more complex and varied than simple mono-ester combinations. The presence of bifunctional groups in these acids and alcohols results in the formation of di-esters, hydroxy esters, and poly-esters.

Inter-esterification of hydroxy acids may occur to form di-esters and poly-esters in the following manner:

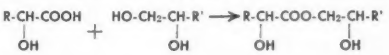
This type of inter-esterification to form poly-esters may be considered as somewhat analogous to polypeptide formation of amino acids, where the $-NH_2$ is replaced with -OH.

The hydroxy acids may react with the sterols, the "triterpenoid" alcohols, and the normal, iso and anteiso fatty alcohols to form hydroxy esters, as follows:



which in turn may react with the fatty acids to form poly-esters, or with hydroxy acids to form poly-hydroxy esters.

The hydroxy acids may also react with the dihydric alcohols to form di-hydroxy esters as follows:

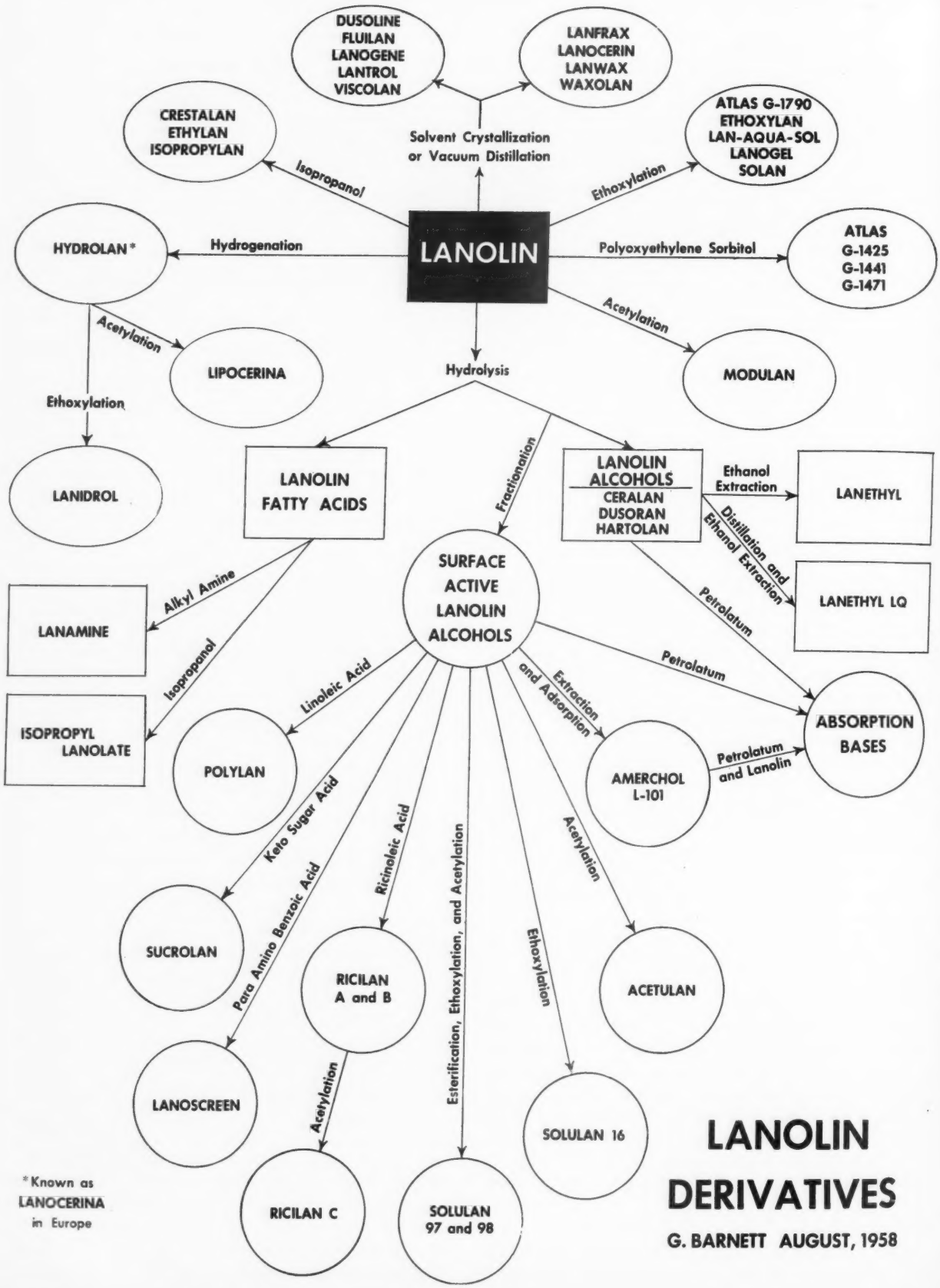


which in turn may react with either the fatty acids or hydroxy fatty acids to form complex poly-esters.

Hence the total number of molecular combinations is actually unknown. Truter stated that "an estimate, based on the assumption of random combination of the acids with the alcohols, indicates that the number of possible esters is almost infinite."[3]

II. Biochemical Aspects

There have been occasional statements made that lanolin is the one material which approximates human sebum more closely than any other cosmetic material. While the origin and functions of these two sebaceous secretions may be the same, the chemical compositions are distinctly different. Basically sebum is a mixture of triglycerides, free fatty acids, and waxes. Its composition is as follows[4, 5, 6, 7]:


DUSOLINE
FLUILAN
LANOGENE
LANTROL
VISCOLAN
LANFRAX
LANOCERIN
LANWAX
WAXOLAN
Solvent Crystallization
or Vacuum Distillation
CRESTALAN
ETHYLAN
ISOPROPYLAN
Isopropanol
ATLAS G-1790
ETHOXYLAN
LAN-AQUA-SOL
LANOGEL
SOLAN
Ethoxylation
HYDROLAN*
Hydrogenation
LANOLIN
Polyoxyethylene Sorbitol
ATLAS
G-1425
G-1441
G-1471
Acetylation
Acetylation
LIPOCERINA
Hydrolysis
MODULAN
Ethoxylation
LANIDROL
LANOLIN
FATTY ACIDS
Fractionation
LANOLIN
ALCOHOLS
CERALAN
DUSORAN
HARTOLAN
Ethanol
Extraction
LANETHYL
Distillation and
Ethanol Extraction
LANETHYL LQ
Petrolatum
SURFACE
ACTIVE
LANOLIN
ALCOHOLS
Alkyl Amine
LANAMINE
Isopropanol
ISOPROPYL
LANOLATE
Linoleic Acid
Petrolatum
ABSORPTION
BASES
POLYLAN
Extraction
and Adsorption
AMERCHOL
L-101
Petrolatum
and Lanolin
Keto Sugar Acid
Ricinoleic Acid
Acetylation
Para Amino Benzoic Acid
Esterification, Ethoxylation, and Acetylation
Ethoxylation
SUCROLAN
RICILAN
A and B
ACETULAN
LANOSCREEN
Acetylation
SOLULAN 16
RICILAN C
SOLULAN
97 and 98
*Known as
LANOCERINA
in Europe
LANOLIN
DERIVATIVES
G. BARNETT AUGUST, 1958

Free fatty acids (saturated)	14.3%
Free fatty acids (unsaturated)	14.0
Triglycerides	32.5
Waxes (excluding cholesterol esters)	14.0
Free cholesterol	2.0
Cholesterol esters	2.1
Squalene ($C_{30}H_{50}$)	5.5
Paraffins (branched chains)	8.1
C_{18} to C_{24} alkane diols	2.0
Lathosterol	0.3
Dihydrocholesterol	0.1
Not specified	5.1

The striking difference in refined lanolin is the complete absence of triglyceride esters and free fatty acids, and it is a true chemical wax rather than a fat.

Wheatley described the biochemical aspects of sebum formation in man, sheep, and other vertebrates[4,5] and prepared a very interesting comparative tabulation of the sebum composition. He found that it seems to be a unique property of the animal from which it originated. He stated "it is almost possible to take a specimen of sebum of unknown origin, analyze it and determine the animal from which it came."[5] Wheatley emphasized that these studies all point to a unique synthesis, a process which appears to be taking place in the sebaceous gland itself.

III. Dermatological Aspects

Lanolin has the unexcelled reputation of being an effective emollient for the skin. But surprisingly little dermatological research has been published concerning the relative emollient value and skin effects of lanolin and its derivatives, as well as other cosmetic materials. This lack of data is due to the complex nature of emollience and the more difficult problem of developing realistic test methods for such evaluation.

Frazier and Blank[8] defined an emollient material as one which prevents or relieves dryness of the skin. Strianse[9] defined an emollient as an "agent which, when applied to a dry or inflexible corneum, will effect a softening of that tissue by inducing rehydration."

Three significant studies on the behavior of lanolin on the skin have appeared in recent literature[10, 11, 14]. Butcher[10] studied the effects of applications of lanolin and other oils on the epidermis of the rat. He found that repeated inunction of olive oil and mineral oil caused acanthosis and parakeratosis (hypertrophy of the corneous layer with imperfect cornification). In contrast to this finding, it is of considerable significance to note Butcher's observation that "the application of lanolin induced little, if any, alteration in the epidermis. The skin of the treated animal often felt slightly softer. It appeared as if the lanolin aided in maintaining the epidermis in the normal condition."[10]

The same author[11] studied the penetration of lanolin when applied to the backs of rats. He found that "lanolin was retained by the superficial strata of the epidermis and did not penetrate more deeply." Harry[12] and Sulzberger[13] also found that lanolin did not penetrate human skin in their experiments.

This lack of pentration of lanolin is all the more significant in that it enhances the mechanism for rehydration of the skin. Long experience has shown that lanolin and its derivatives soften or plasticize the stratum corneum either directly or indirectly. It provides a mildly occlusive, smooth film over a rough, flaky surface. By retarding evaporation of insensible perspiration from the skin-film interface, it permits rehydration of the corneum with subsequent softening and increased flexibility of the skin.

A relative quantitative evaluation of the occlusive effect of lanolin and other cosmetic materials on the transpiration of moisture from human skin was made by Powers and Fox[14]. In their method lanolin was applied to the inner surface of the forearm (5-6.25 mg. per square centimeter, equivalent to a film thickness of 54-68 microns), and was covered with a 28 mm. diameter glass desiccator containing silica gel. The uptake of water was determined by weighing the miniature desiccator after specific time intervals. All results were obtained under conditions of zero relative humidity. Lanolin caused a 32 per cent reduction in moisture loss from the skin and liquid lanolin a 22 per cent reduction, indicating a mild occlusive effect for these materials as opposed to the extreme barrier effect of petrolatum (48 per cent reduction in moisture loss). It would be highly significant to determine the corresponding figures for all lanolin derivatives and modifications and possibly correlate structure with skin effects. The ultimate questions to be answered are the relationship between the hydrophilic-lipophilic characteristics of the derivatives, epidermal penetration, degree of occlusiveness, and emollience.

IV. Derivatives and Modifications

A complete listing of the original and the new lanolin derivatives is presented on the outline page and in the following text. However, to avoid repetition, descriptions of the chemical and physical properties will be presented only for the new trade names. Reference should be made to the author's original article[1] and to the respective company brochures for details of those trade names which are not followed with a chemical description.

The new derivatives and modifications include Crestalan, Ethoxylan 225, Golden Dawn Wool Alcohols, Amerchol Isopropyl Lanolate, Lan-Aqua-Sol, Lanethyl LQ, Lanfrax WS 55, Lanidrol, Lanoscreen, Lantox, Lanwax #120, Lipocerina, Liquid Lanolin 60, Ricilan C, Sucrolan, and Vigilan. The two lanolin derivatives which are no longer available are Etholan and Polychol.

A. Lanolin Alcohols

1. *Ceralan* (Robinson Wagner) (*Continued on p. 368*)

OBESITY AND APPETITE DEPRESSION

BY BERNARD IDSON
DIRECTOR OF RESEARCH, JULIUS SCHMID, INC., NEW YORK CITY

Obesity as an æsthetic and nutritional problem is everywhere. One out of every five adults in the United States is overweight. TV, radio, magazines and newspapers pound out the message to reduce. Reducing salons are springing up everywhere. Over a million dollars a day is spent for pills and devices aimed at slenderizing. Nutritionally, statistical evidence links overweight to vascular disease, diabetes, gall bladder ailment and other metabolic disorders.

Why do so many get fat? Practically, the only reason is overeating. Why do they overeat? Habit, developed in early years, and temporary relief from frustration by overindulgence.

Energy is taken into the body in the form of food. It is expended in basal metabolic activities and external work. In early adulthood there may be no weight gain on a large diet since physical and metabolic activity makes the energy outgo equal the energy intake. When one gets to forty or fifty basal metabolic and physical activity drops. If eating habits remain the same, the fat stays on. In children, obesity will also result when the intake exceeds the outgo by an amount greater than that needed to build new tissue. The so-called constitutional or hereditary obesity may be due, in many cases, to nothing more than copious family eating habits.

There are differences between individuals regarding consequences of food intake. Obese individuals, after losing weight on low caloric diet, can only maintain that weight on considerably lower intake than that of previously non-obese individuals of similar age and dimensions. This does suggest metabolic differences. This only emphasizes the necessity for less caloric intake for the previously obese.

There are cases of obesity due to endocrine or cerebral derangements, but their importance in the overall obesity problem is very small, probably amounting to less than three per cent.

Appetite is the key to eating. Appetite must be differentiated from hunger. Hunger is physical. There is actual pain due to the contractions of an empty stomach. Appetite is more complex, being related to psychic and emotional sensations of the experiences of tastes and smell of food. Appetite usually is a means to allay an anxiety.

There is little scientific agreement on basic appetite mechanisms. The most prominent theory is the controversial one of Mayer who believes that appetite is regulated by a brain center sensitive to glucose utilization. Hunger and satiety are associated with variations in arteriovenous blood sugar differences.

Treatment of obesity first requires reduction of the excessive fat stores. The first essential is a low caloric diet. Types of diet are varied, with little agreement as to which are optimum. All—high protein, fat-free, high carbohydrate, salt-free—suffer from some disadvantage. The consensus is that a high protein, low fat, low carbohydrate diet supplemented by vitamins and minerals seems best.

The second requirement is that the patient stick to the diet. To this end has been advanced a number of appetite suppressant drugs. These preparations fall into three main classes. The first are the "before meal candies" that assertedly diminish appetite by raising blood sugar levels. The second are the bulk producers. The third class are the drugs which act on the central nervous system.

The "before meal candies" are the biggest sellers, for they give fat people the thing they like best—the security of candy and sweets. For at least two decades the most popular of these has been Ayds Candy, distributed by Carley, division of Campana Sales, Batavia, Illinois. Ayds contains condensed whole milk, vitamins, minerals and some vegetable residue. Each caramel yields about 25 calories. Sales of Ayds have increased over 5 times since 1949. Other big sellers in candy reducers are RDX (skim milk powder, sugar,

ascorbic acid and flavoring), Fastabs, Slentabs, Slimline wafers, Myntex T-W-O (take weight off), Waytrol and others. Most of these are similar to Ayds and RDX in formula, but some contain bulking agents or a central nervous system drug—phenylpropanolamine. The latter (PPA) is the only such drug allowed for "over-the-counter" sale. PPA was permitted by the Food and Drug Administration for inclusion in products for direct sale, since they consider the recommended dosage (25 mg. 3 times daily) safe. Label warnings are required against use by persons with heart disease, thyroid trouble, diabetes or high blood pressure. The drug is related to benzedrine and ephedrine in chemical structure. Preparations containing phenylpropanolamine are Thin Down (Revlon), Regimen (Drug Research), Hungrex (Allegany Pharmacal), K-12 (Practical Research), Liquiform, Wonder-Slim and Du-Dol Reducing Cocktail. Some, such as Hungrex and K-12, are solely phenylpropanolamine. Others contain vitamins, minerals, and occasionally a diuretic such as ammonium chloride. The effectiveness of the "candies" is very difficult to evaluate. They themselves certainly have little appetite depressant action. However, they may help to put the obese individual in the proper frame of mind to cut down on food intake. Even those containing phenylpropanolamine must be accompanied by diet, since the quantity of PPA is not enough to be affective.

Bulk-producing gums, taken before meals, are used to discourage food intake. These cellulose derivatives, and other gel formers are supposed to absorb water, swell and form as mass in the stomach to create a feeling of fullness or satiety that will discourage food intake. The chief agent is methyl cellulose, used alone in tablets, granules or even crackers (Melozets). The methyl cellulose is often combined with nervous system stimulants (as in Obocell or Obolip). Another product depending for its action on a bulk producer is Larson's S.M.D. granules "for use with the Swedish Milk Diet." One oz. contains 10 gm. guar flower, 7 gm. of sugar and assorted B-vitamins. These bulking agents are not without hazard if taken in too great quantity. Ingestion of large amounts involves the danger of intestinal impaction and irritation. They are also laxatives which can interfer with body's use of proper foods.

Diuretics, such as ammonium chloride, are currently used in some direct sale preparations. Advertising sometimes refers to "melting fat away". The selling appeal is based on the fact that body fat is composed of about 70 per cent water and the diuretic is supposed to take water out of the tissues. In actual practice the diuretic action serves but little since there is no genuine edema, or water swelling of tissues in obesity.

The last, and by far the most important, group of appetite depressent drugs are those which stimulate the central nervous system. Surveys indicate that well over 90 per cent of physicians prescribe these sympathomimetric amines, principally the amphetamines, for obesity. Amphetamine, or benzedrine, is the dl form of 1-phenyl-2-amino propane. The biggest seller is 'Dexedrine' (Smith, Kline & French), the d- form of the same molecule. There are over one hundred ethical preparations containing some salt of either the dl or d-amphetamine, or chemical relatives, alone or combined with sedatives, bulking agents, vitamins, antihistamines, analgesics and minerals.

The amphetamines all have the common property of affecting appetite through their action on the sympathetic and higher centers of the central nervous system. They help the would-be dieter to practice restraint in eating. Whether or not the appetite loss is a specific drug inhibition of an "appetite center" or accomplishes the effect by causing the patient to become more interested or attentive to activities other than eating remains unanswered. A host of investigators have considered the possible influence of amphetamines upon metabolism, but no one has been able to

(*Continued on page 375*)

THE INTERNATIONAL FEDERATION OF COSMETIC CHEMISTS

S. J. Strianse, President of the Society of Cosmetic Chemists in 1957, set forth (*J. Soc. Cosmetic Chemists* 9:64, 1958) a number of suggestions to replace those offered by the Societe Francaise de Cosmetologie for the formation of an International Federation of Societies of Cosmetology.

These thoughts include the name of the group, which would be the International Federation of Societies of Cosmetic Chemists or Scientists, with headquarters not to be Paris and the prevailing language to be English instead of French. National groups included would be called Societies of Cosmetic Chemists and not Societies of Cosmetology and membership would include only scientifically trained people. The possible functions of the federation might include the coordination of interchange of information; to encourage and sponsor fundamental research adding to the knowledge of cosmetic science; to hold international meetings; to sponsor international awards; "to protect the professional standards of cosmetic chemists, except as may be restricted by the . . . interests of institutions or companies with which the members are or have been affiliated."

The title of the Strianse paper was "Toward a United Nations of Cosmetic Chemists" and the title is now perhaps more apt than it was ment to be. Debate has become heated with the publication of a response in the Volume 1, No. 7, 1958 issue of *Cosmetologie*. Henri Luzuy, who made the original presentation for the Societe Francaise de Cosmetologie in Paris in July, 1957, comments on the American counter-proposal. His eloquence is presented here in translation, and the weapons in the forthcoming duel might well be Royal Jelly at twenty paces.

Comments by Henri Luzuy

I admit some surprise on reading this article. I see again the salon of the Centre National du Commerce Exterieur where we met in July, 1957, along with M. Sabetay, Morelle, Colson and Sfiris, our foreign colleagues, American, English, German, Italian, Swiss, Belgian and Czech; I retain in my memory the echo of the preliminary discussion related to the subject of this International Federation and, even if the photograph did not assist me, I would have little trouble in remembering the hands raised at the time of the vote, marking unanimous agreement with the ideas we had just developed and defined.

What was the theme that led to the first exchange of opinions and which was in some way the first point of this new international charter? This was the independence of the Societies of Cosmetology of other branches of beauty treatment, "this independence being one of the conditions of their progress on a scientific level."

On this point everybody was in accord and the opinion of our colleagues Sfiris and Morelle was the same as that of de Navarre (U.S.A.), of Pickthall (England) and of Schreus (Germany). On the other hand, the following day, our American and British colleagues could follow the works of this international gathering of Societies of Cosmetology organized by the S.F.C., and could participate themselves in noteworthy communications and appraise the high scientific content of the session. The president of the Society of Cosmetic Chemists of the U. S. congratulated us on the progress accomplished as much in Europe as in America and greeted the creation of the International Federation and assured us that "Cosmetology will have its place in the world that it merits."

Nevertheless, after very complete and direct knowledge of the French position, of the purely scientific activity of the French Society of Cosmetology and of its complete independence of any other group, the same president of the Society of Cosmetic Chemists of the U. S. wrote, "Cosmetology has an unscientific connotation in this country. Actually it encompasses beauty treatment and the practices of the beautician . . . We should be opposed to being identified as cosmetologists." Why this sudden change of attitude, and is it a simple quarrel over words? For us Frenchmen, whose language is deeply rooted in Greek and Latin, cosmetology means etymologically the science of cosmetics. There is no better word to define a certain field of activities, of work and of research. It has the advantage of including the numerous scientific disciplines which touch directly or indirectly on this science of cosmetics. This was perfectly understood by Dr. Aural Voina who used this term for the first

time at the International Congress in Bucharest in 1935 when he insisted on "all that this science comprises in the fields of dermatology, pharmaceutical chemistry, medicine and medico-sociology." If this word "cosmetology" has current usage, it is because it is clear, precise and significant. That our English and American colleagues prefer for themselves "Society of Cosmetic Chemists" rather than "Society of Cosmetology" is entirely their right and we do not seek any quarrel on this ground. We might simply remark that the term appears narrow; it seems to apply only to specialized chemists of limited number, while "cosmetology" extends beyond this simple specialization, and will appeal to technicians, to scholars and to investigators in numerous and different disciplines who are not merely chemists and still less cosmetic chemists, but are biologists, physicians, physiologists or pharmacists.

The objective of an International Federation is not to group technicians or specialists, which would restrict their possibilities of study and activity, for the word has a precise meaning; its interest would seem to us to be to group together, or more exactly to federate, these young societies motivated by a scientific spirit, which in all the nations of the Old and the New World have the task of promoting progress in all that concerns the life, the beauty and the health of the epidermis.

It is important, for this reason, that each of the societies brings to the International Federation its own individuality and its personality so that precisely these differences will provide a constant flow of new ideas and a profitable exchange of views. This is like a traveler who, in a foreign country, marvels at the novelties around him, confronts them with the opinions and ideas he has received and, in contact with different personalties and different customs, enriches his own personality.

A Federation—and even more an International Federation—has meaning and interest only if it brings together in a very flexible framework very diverse elements. If the objective is a common one, the particular methods of each country need not inevitably be the same. In this field as in others, respect for individualities and liberties is a factor in progress and we do not remind our American friends of this. The foundations, based on each representative national group, must first be solid so that they delineate the architecture and this, step by step, leads to the dominating spire.

It seems that this would be the sensible view. For us Frenchmen, it is a Cartesian rule.

For our American colleagues, it is different. The federative architecture is a spiritual hope and construction begins with the steeple.

Let us then re-read Mr. Strianse's article to determine beyond the use of words his true meaning.

In reality, the French Society of Cosmetology does not appear sufficiently representative to our American colleagues. It is of no importance that what it is was quite evident in July, 1957; it is of no importance that since January 20, 1950, when it was founded, it has multiplied congresses, conferences, scientific publications and works; it is not important that it has united specialists, scholars, and professors of indisputable renown. None of this is important.

It is only important that for a national group to be truly representative within the International Federation it must bear the title of "Society of Cosmetic Chemists" and not "Society of Cosmetology" (article 3 in Mr. Strianse's article).

But why? For the sole reason—and we are acquainted with Mr. Strianse and understand him—that "Americans and British represent the Societies of Cosmetic Chemists which are the most scientifically advanced in the world and that these other countries look to us for guidance in this direction."

Let us be good sports. Let us admit the assertion or more exactly the postulate, since it will require proof. What would be the consequences? Mr. Strianse, again, informs us that the American and English "have helped establish similar functioning societies in Denmark, Switzerland and in Germany; though newly formed, they are enthusiastic and energetic about modeling their operations along the same lines as the British and U. S. Societies."

And Mr. Strianse adds, "Perhaps this approach of guiding the cosmetic chemists of the world to pattern their societies after ours is our rightful and most fruitful role in this international picture."

So be it. But where is the International Federation in all this? We see perfectly the construction of the steeple in British and American colors; in other words, the guiding hand extends from above; we recognize the direction impressed on the movement; we recognize the guide showing this direction, but not one ounce of federation architecture. On the contrary, there is a linear, geometric structure, descending but not ascending. I do not think that the U. N. should ask its members, before they take part in it, to model their constitutions on that of the great American democracy.

I would say to our American and English colleagues apart from any feeling of nationalism and with all friendship, that they are taking a false route and are causing confusion. A Federation is not a commerical house with subsidiaries, nor a powerful empire with satellites. It is, on the contrary, the grouping of elements dissimilar in their essence, each with its own characteristics, its own individuality, its traditions and its liberties and pursuing a common goal, in a sense of equality and not of subordination.

That a Federation tends to unity of views and unity of action is very desirable and even its reason for existence. But to seek this unity too soon and to create it artificially in place of allowing it to form by itself, by contacts, by exchanges, by a true common

(*Continued on page 377*)

EXECUTIVE COMPENSATION IN OUR INDUSTRY

BY PHILIP H. DUTTER, MCKINSEY & COMPANY, INC., MANAGEMENT CONSULTANTS

What are the trends in compensation for top executives in the drug and cosmetic industry? How does this industry compare with others as far as compensating top executives is concerned?

For the past four years the management consulting firm, McKinsey & Company, Inc., has conducted an annual survey of executive compensation. This year's study, covering compensation paid in 1957, is based on information reported by 642 companies listed on the New York Exchange. Included in this group are 15 companies in the drug and cosmetic industry. An analysis of the results of this study points up some interesting features of executive compensation trends and patterns in this industry.

Comparative Compensation Trends

Ten of the 15 drug and cosmetic companies reported that their chief executives received greater total compensation—including salary, bonus, and deferred compensation—in 1957 than in 1956. The other five reported no change. The average chief executive in these 15 companies saw his compensation increased by 6.0 per cent over 1956. This increase is not surprising when we consider that all except one of these companies enjoyed gains over 1956 in sales, profits, and assets. Over-all, sales were up 15.4 per cent; profits, 24.5 per cent; and assets, 15.5 per cent.

The drug and cosmetic industry fared better than most in 1957. Sales for the 642 companies included in the McKinsey survey were up only 5.3 per cent; net profits were down 3.2 per cent. The average change in chief executive compensation for all 642 companies was an increase of only 1.0 per cent, as compared with 6.0 per cent for the drug and cosmetic industry. Only one other industry (tobacco) experienced a higher rate of increase in chief executive compensation than the drug and cosmetic industry.

Comparative Compensation Patterns

The above-average rate of increase in chief executive compensation for the drug and cosmetic industry served to establish more firmly this industry's position as one of the higher paying industries for top executives. A chief executive of a company with $100 million sales in the drug and cosmetic industry can expect to earn $115,000 per year, if he is compensated according to the industry average, while the general average for companies the same size, including all industries, is $85,000. None of the 18 industry categories for which data was compiled had a higher level of compensation than the drug and cosmetic industry.

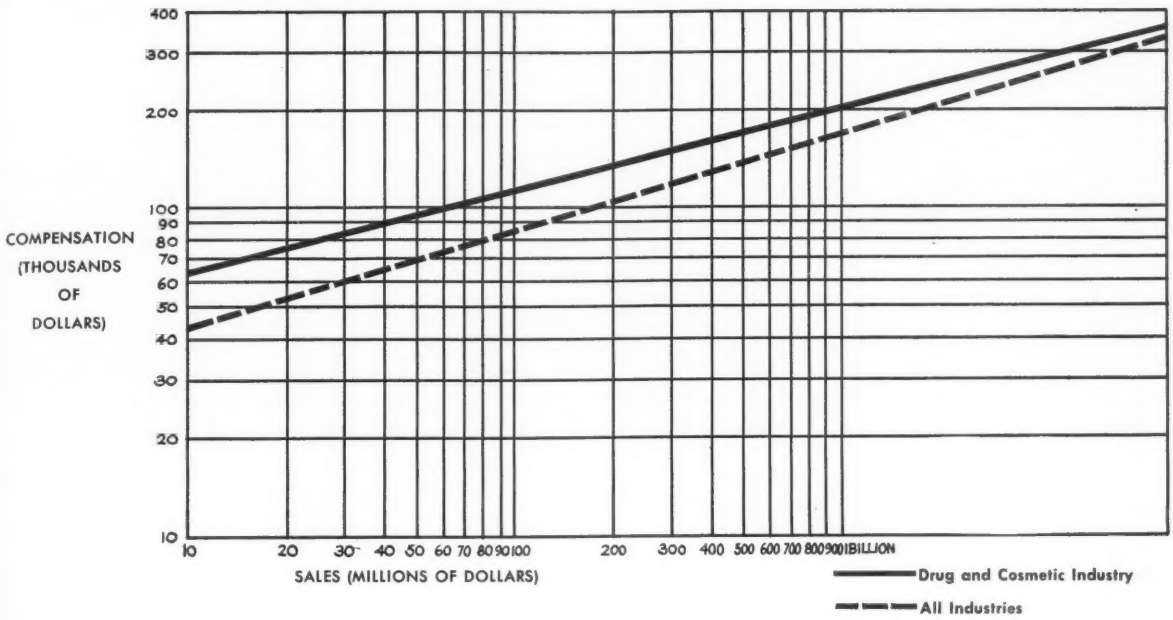
Studies in the executive compensation field over the years have shown significant differences among industries. Generally, top executive compensation tends to be higher in industries where competition for markets is intense, where significant changes occur frequently and where day-to-day management decisions are critical to company success. Chief executive compensation tends to be lower in industries that are less highly competitive or in which important competitive advantages accrue through the possession of preferable locations, facilities, sources of raw materials, essential equipment or necessary funds, and where key factors affecting profits are less subject to control or modification by management action. All of these elements affect the importance of a chief executive's responsibilities.

Compensation for a chief executive is also affected by the size of the company, as well as by the industry in which the company operates. The McKinsey study takes the effect of company size into account by relating chief executive total compensation to three measures of company size—net sales, net profits after taxes, and total assets—in arriving at averages for an industry. Below are some of the average relationships between company size and chief executive compensation in the drug and cosmetic industry for 1957.

If company sales were:	Indicated chief executive compensation is:	If company profits were:	Indicated chief executive compensation is:	If company assets were:	Indicated chief executive compensation is:
$50 million	$97,000	$5 million	$105,000	$25 million	$93,000
100 million	115,000	10 million	118,000	50 million	108,000
125 million	135,000	25 million	135,000	100 million	125,000

The margin of compensation superiority of the drug and cosmetic industry over other industries is especially marked for smaller companies. In the chart below the solid line represents chief executive compensation related to sales in the drug and cosmetic industry, while the dotted line represents all industries. It can be seen that the margin decreases for companies with larger sales volume. Company size appears to have less influence on chief executive com-

COMPARATIVE PATTERNS OF CHIEF EXECUTIVE COMPENSATION RELATED TO SALES



pensation in the drug and cosmetic industry than in most other industries.

Other top executives

What about executives below the chief executive level? The McKinsey survey includes an analysis of the total compensation of the next highest paid three executives in relation to the chief executive officer. Over the past three years the over-all average relationships between the highest paid executive and the second, third and fourth highest paid have not varied substantially. This would indicate that the compensation paid the chief executive tends to set the pace for the others. Below is a comparison of the drug and cosmetic industry with the all-industry figures for 1957.

	Percentage of Chief Executive Compensation	
	All industry	*Drug and cosmetic*
No. 2 executive	69%	80%
No. 3 executive	57	61
No. 4 executive	52	50

Fringe Benefits

Because of the growing recognition of the effect of income taxes on top executive compensation, fringe benefits have come to play a role of steadily increasing importance in the executive compensation picture. Certain fringe benefit practices vary markedly between industries. For example, employee saving plans, used by 60 per cent of the companies reporting in the petroleum industry, have been adopted by only 2 per cent of the companies in other industries.

Fringe benefit practices in the drug and cosmetic industry appear to be in line with general industry practices, for the most part. All except one of the 15 drug and cosmetic companies reporting have pension plans. Only one has a profit sharing trust, and one, an employee savings plan. These proportions are close to over-all industry averages.

Every one of the 15 companies reported stock option plans, as compared with 60 per cent for industry as a whole. Also, seven of the 15 used some form of deferred compensation for some executives, as compared with a one-for-three ratio for industry as a whole. Since there has been a steady increase in the use of these compensation devices in recent years, it would appear that the drug and cosmetic industry may be ahead of other industries in recognizing their advantages.

Summary

While any general conclusions must be limited by the extent of the data on which they are based, the following tentative conclusions might be drawn from the McKinsey study:

(1) Compensation for chief executives showed a greater increase from 1956 to 1957 in the drug and cosmetic industry than in most other industries. This was accompanied, however, by a clear margin of superiority over other industries in sales and profit improvement.

(2) The drug and cosmetic industry is one of the higher paying industries for top executives.

(3) Company size does not have as much effect on chief executive compensation in the drug and cosmetic industry as it does in most other industries.

(4) Fringe benefits for top executives in the drug and cosmetic industry appear to be in line with, and perhaps a little ahead of, the pattern for other industries.

A LOOK TO THE FUTURE

BY G. M. SAVAGE, RESEARCH LABORATORIES, THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

Anyone who has participated in an active screening program for new antibiotics is soon smitten by the prolific biosynthetic capacity of the actinomycetes, a group of microorganisms which received little attention prior to the antibiotic era. From right under our feet, antibiotic screening programs have turned up some 400 species of actinomycetes that produce antibacterial, antifungal, antiparasitic, antitumor and antiviral antibiotics. Each species produces at least one and occasionally as many as eleven or twelve antibiotics at the same time.

Some 750 new antibiotics have been reported in the literature in the past twenty years. More than twenty of these are being used clinically in the control of various disease states. To accomplish this, our industry is currently producing in excess of 1,000 tons of antibiotics annually for human consumption alone.

As a result, the treatment of infectious diseases today is a relatively simple matter, compared to twenty years ago. And much of the classical technique comprising medical microbiology of twenty years ago is now obsolete.

As we look ahead, we may either indulge in star-gazing and crystal-balling, or we may look carefully at the accomplishments of the past for clues to future successes in microbiology. Without absolving myself of any star-gazing tendencies, I think the latter course is more profitable.

I have just four suggestions to make, based on antibiotic experiences gained so far. They are:

(1) For modifiers of cell growth and metabolism, we must look to the cell.

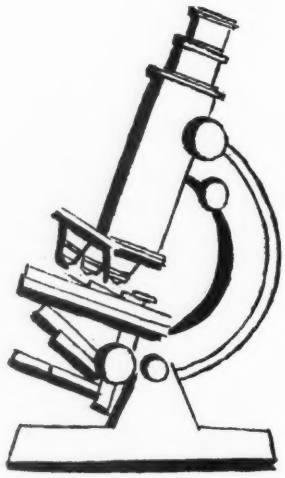
(2) Let us make good news out of bad news.

(3) We shall succeed according to the quality of the questions we ask.

(4) We must plan to dedicate more effort to methodology research.

One of the most striking characteristics of the antibiotics is their general refractoriness to chemical synthesis. Of the twenty-odd useful antibiotics, only two have been synthesized, and only one synthesis is commercially useful. Sugar moieties and large numbers of asymmetric carbon atoms weigh heavily against chemical synthesis of these antibiotics in the future.

Since a pattern is emerging of the discovery of compounds refractory to synthesis, it appears we are being drawn deeper into the era of employing microbial cells for their synthetic capacities.



A note of optimism appears. Many biologists are aware that for every antibiotic worthy of isolation and characterization, perhaps a hundred or more are encountered which are passed over lightly as being of too little merit to warrant attention. These thousands of biologically active compounds constitute a reservoir of potentially useful compounds whose value must await detection either by better methodology or because of new screening objectives. This leads us to the second topic: Making good news out of bad.

Researchers in the screening business have set up a series of criteria or hurdles for each new antibiotic to pass before it can find use in clinical medicine. It must have an interesting spectrum of activity, be produced in sufficient yields, be new and different, be extractable, stable, non-toxic, active *in vivo* in experimental animals, then in human beings. A large number of casualties trip over the toxicity hurdle. Bad news of this type may well be turned into good news, if we look carefully at the types of pharmacologic activity these "toxic" candidates are manifesting. Rare is the drug important in medicine that does not have some undesirable side-effects associated with its use. Perhaps we should pay more attention in the future to the presumably toxic antibiotics, in the spirit of studying them for their peculiar biological properties.

In 1942, a series of new sulfonamides were being screened to find new antibacterial activities. In a series of typhoid fever patients being treated with the new drugs, the appearance of certain bizarre, neurologic manifestations were presumed to indicate toxicity. At this point these sulfonamides might have been dropped. But the similarity of these manifestations to

*Presented at the Symposium on Antibiotics of the American Institute of Biological Scientists at the University of Indiana, Bloomington, Ind.

those of hypoglycemic drugs led Loubatieres to investigate the presumed toxicity of these drugs. He confirmed that the pharmacologic response was indeed that of producing a hypoglycemic state.

For a period of eight years, this important observation was not appreciated. In 1954, the phenomenon was rediscovered in still other sulfonamides. This time its significance was appreciated and analogues were screened exclusively for this new property. This led ultimately to the discovery and development of the first orally-active, safe and practical hypoglycemic agent for the control of diabetes in man.

A variation on this same theme is the fear we must all have experienced at some time or other, namely, that we may be passing up a useful drug because it is being abandoned for its frightful toxicity to small animals, usually one or more species of rodents. Penicillin is so toxic to guinea pigs, one wonders whether it would ever have been tested in man if its guinea pig toxicity had been detected first.

As long as we cannot screen antibiotics for toxicity in humans, we must await some new methodology by which human tolerance might be forecast.

The experience of discovering a useful new drug while seeking one of another type is well known. Fumagillin was originally isolated for its antiphage activity in the hope its antiviral action would hold up against human and animal viruses. Instead, it was eventually discovered to be a potent anti-amebic drug.

The third topic I'd like to touch on, a forecast if you like, is that "we shall succeed according to the quality o fthe questions we ask." Perhaps this is just paraphrasing Professor Conant's definition of a university as "a place where you ask questions."

A most popular question always asked upon announcement of each new antibiotic is: "What is the mode of action of this antibiotic?" Now mode of action studies are helpful in many ways, for example, as guides to proper use in the clinic, and in the avoidance of incorporating interfering substances in antibiotic formulations. I am always bewildered, however, when mode of action studies are offered as an answer to the question of how to find new antibiotics.

Questions that seem to require much more study are:

(1) How does a microorganism make a particular antibiotic or group of antibiotics?

(2) What controls the efficiency of biosynthesis in a particular medium and environment?

(3) What is the phenomenon of culture run-down and how might it be controlled?

Today we throw away spent penicillin beers that are more potent than the best penicillin beers we could produce twelve years ago.

The phenomenal thousandfold improvements in yield of penicillin during the first twenty years of its manufacture has so conditioned our thinking that similar accomplishments are expected for each new fermentation product.

With the proper application of microbial genetics we may some day be able to duplicate this accomplishment for a multitude of fermentations, and with much better understanding and control of our accomplishments.

A good example of a poor question can be drawn from the early days of penicillin and streptomycin fermentation research. In the spirit of more adequately refining the theoretical objective, the question was asked: "What is the theoretical maximum antibiotic potency attainable by fermentation with this microorganism?" It was thought that an answer could be obtained by determining the highest concentration of antibiotic the microorganism could tolerate. It is perhaps fortunate that the optimists in the profession paid attention to these theoretical ceilings. Today penicillin is being produced biosynthetically at potencies at least ten times higher than the "theoretical ceilings" of twelve years ago.

There is such a temptation to ask questions that, in good executives, "limit the objective," "pinpoint our target," and "avoid becoming too diffuse" that we must constantly be on guard that we don't speed our efforts closing doors rather than exploring the ever-appearing vistas which Pasteur noted were always being exposed by the scientific method.

Perhaps we can profitably apply the techniques of brainstorming to our scientific problems in order to increase our creative thinking and minimize our pessimism. Anyone who reads Charles Clark's recent book *Brainstorming*, published by Doubleday, not only will be pleasantly amused, but will immediately recognize the killer phrases so often applied by well-meaning people at the moment creative research ideas are trying to be born.

A fourth objective we must strive for in the future is the development of superior methodology in the search for new drugs.

Martin and Synge's Nobel prize-winning technique of paper chromatography has revolutionized the finding of new antibiotics. It will no doubt be applied to countless new finding operations as fast as requisite companion methodologies are developed. In this way, we can look forward to the discovery of new

(*Continued on page 378*)

TABLET BINDERS*

BY LEONARD S. DONAGHY, F. J. STOKES CORPORATION

The compressed tablet consists of a mixture of ingredients formed into small or large granules which are then compressed into the desired shape and size. The granulation step determines the characteristics of the final tablet and the binder is a very important element in the making of granules. Binders are simply binding agents or adhesives to permit the heterogeneous powder to be formed into granules of desired hardness and size.

Requirements for pharmaceutical binders must not only be in line with FDA specifications with respect to toxicity, but must also not interfere with rapid disintegration specified for modern pharmaceutical tablets.

Depending on the binder itself, it is incorporated in the granulation mass by a number of methods.

(1) A solution of the desired concentration is mixed with the tablet ingredients to form a damp, not pasty, mass.

(2) The binder is added dry to the other ingredients and the mixture is moistened to form a damp mass.

(3) The binder is added dry and the mass compressed or slightly moistened and tabletted without drying.

(4) The dry mixture, including the binder, is slugged (compressed into large tablets which are then broken into small granules).

(5) With wax or similar materials as the binder, these are added as the dry powder to the other ingredients and the whole mixed with heating.

The first method is the most generally effective and useful. The required amount of binder is dissolved in the amount of water required for the total mass.

The second method is preferred with swelling binders when quantities are used that will not dissolve in the water needed.

Materials that are either sensitive to moisture or hard to dry are mixed by the third procedure. Where slugging is the preferred tablet-making procedure, especially where moisture must be rigorously excluded, the fourth method is used.

The batch must be thoroughly mixed to distribute the binder powder or solution. Uneven distribution will lead to spotty granulations and sticking to the punch faces.

The single agitator, broken spiral type of granulating mixer is used for all general purpose mixing; firm and easily compressed granules result from this operation. Larger mixers using a spiral ribbon are more suitable for blending than for granulation. Vertical paddle or pony mixers are used where the granulating job is relatively easy to do, and the broken spiral, double agitator mixers will produce harder granules. Where the tablet formulation includes some extremely light materials that are difficult to incorporate and might cause lamination if the occluded air is allowed to remain, a roller mill is used for mixing.

For pharmaceutical tablet-making, the binders available include gums, dextrin, dextrose, certain drug extracts, gelatin, glucose, lactose, molasses or malt syrup, salts, starch, cane sugar, waxes and water alone.

The gums include agar, alginates, methylcellulose, sodium carboxymethylcellulose, karaya, kelp, pectin, polyvinyl alcohol and tragacanth as products soluble in water or swelling in the presence of water. Since aqueous solutions are often viscous even with low concentrations of the gum, the latter is often added as a dry powder (procedure 2) for better distribution. A stronger binder in solution is usually also added. Some of the water-soluble gums are ionic in nature and may lead to incompatibilities; the colors of the powders range from white to tan. Acacia is a strong binder and can be included by means of any of the first four procedures. Sandarac and shellac are used as alcoholic solutions.

Dextrin is used as a cooked 10 to 20 per cent solution and is soluble to the extent of 35 to 100 per cent; the white grade is preferred for pharmaceutical tablets.

Dextrose is used interchangeably with lactose as a filler and binder by procedures 3 and 4. It tends to discolor and if heated above 120° F. may remain plastic. It is very quickly soluble in water.

Extracts of liver or certain natural drugs, available in solution or as powders, when included in the formula as one of the active ingredients can act as powerful binders. They are often hygroscopic. Liver extract is used as a filler binder in a slugging procedure.

(*Continued on page 377*)

*From a forthcoming book on tablet making by L. S. Donaghy.

Packaging and Selling

Parfum Mist, New Lipstick-Size Aerosol Perfume

dispenser introduced by Ciro Parfums, is under three inches long, holds a replaceable cartridge in its stainless steel inner cage, which dispenses measured applications. The first lipstick-size aerosol perfume on the market, its metal case is of a brushed gold effect, and Ciro's six fragrances are available. The complete dispenser is made by the Risdon Manufacturing Company.

Elegance for a lovely lady

Your cosmetics help to make her lovely. To appeal to her they should be presented in elegant containers.

You may favor conventional or exotic shapes — in traditional gold or silver, polished to a jewelry finish . . . sunken or embossed designs . . . enamel coatings, stripes or patterns . . . engine turning or engraving.

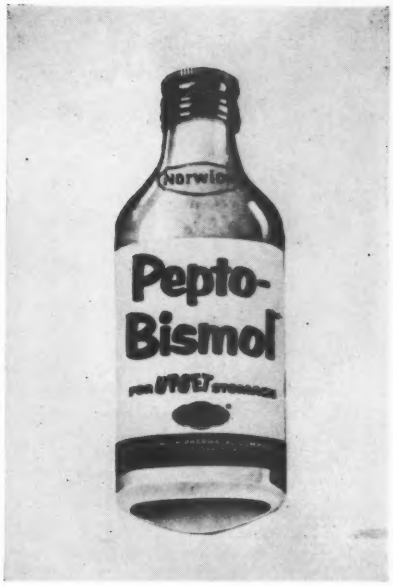
Whatever your preference, Scovill can serve you to your complete satisfaction. By using our standard components, ornamented to your exclusive specifications, you can reduce fitting-up costs and speed delivery. Custom made cases can be created to your own designs or those of our art department.

Representatives qualified to discuss your cosmetic container problems may be reached in Scovill offices in these cities: New York—161 E. 42nd St., OXford 7-3222; Chicago—4105 W. Chicago Ave., NEvada 2-2303; Los Angeles—6464 E. Flotilla St., RAymond 3-7221.

Scovill Manufacturing Company—Cosmetic Container Division—99 Mill Street, Waterbury, Connecticut

Cosmetic Containers by **SCOVILL**

A COLOR MATCH



The use of a particular color as an identifying mark of a particular product was the point upon which the recently concluded court action of Norwich Pharmacal Company v. Sterling Drug, Inc., turned. Norwich's suit for an injunction restraining Sterling in certain aspects of its product, Pepsamar, which Sterling admitted was an imitation of Norwich's Pepto-Bismol, resulted in the court enjoining Sterling from using the pink color in their product. If they use the pink color, said the court, then they must use a blue or other type of container that will not allow the pink color to show through.

From the court decision in this case the following quotations indicate the emphasis placed on the color of the product:

"The contention of Norwich here is not directed to the copying of the formula for its product, Pepto-Bismol, but that it contends that Sterling has so imitated same in its non-functional attributes and advertised and marketed its new Pepsamar in such a manner as to confuse the buying public, to destroy Norwich's property rights to a degree that would be considered unfair in the light of ethical practices required of business competitors. Its contention is based principally upon the almost exact imitation of the color of Pepto-Bismol, the imitation of the emphasis upon the pink color which has been stressed in Pepsamar advertising, the emphasis upon the words 'upset stomach' upon the Pepsamar label and in advertising, similar to the label and advertising previously used over a long period of time by Pepto-Bismol and the splitting of the name Pepsamar into two parts upon the label, similar to such an arrangement of the label of Pepto-Bismol.

"Sterling admits imitation of the product but denies unfairness in the sale or distribution thereof. It contends that no one has a monopoly upon the pink color that has long been used in remedies designed for the alleviation of stomach distress and that it has a therapeutic value in the sense that it is attractive and soothing to those suffering therefrom. . . .

"The resolution of the above contentions must depend upon the determination as to whether or not the appropriation by Sterling of the non-functional attributes of Pepto-Bismol and the similarities in advertising, in marketing the two competing products are such as to trepass upon Norwich's property rights and likewise to result in confusion to the buying public. Any approach to such determination involves a resolution of the dispute as to whether or not the use of pink color in either of the competing products is functional.

"It is not disputed that the pink color and the ingredient producing same have no healing value in themselves. It is designed to present a pleasing appearance to the customer and to the sufferer. It is readily understood that a disordered stomach will accept that which is pleasing and reject that which is repulsive. It is designed to aid in public acceptance. Sterling claims it has a soothing effect upon those suffering from nervous stomach disorders. The court is constrained to find that the pink color has no functional value as the word is commonly used and understood. Pleasing appearance and acceptance is a matter of individual preference. Common knowledge of prominent stomach distress remedies contradicts the fact that the pink color of the competing products is other than a preferred dress of the products involved. The action of Sterling in its use of the pink color is confirmatory of the fact that its object was to imitate Pepto-Bismol rather than to improve its formula. Sterling made no tests of color acceptance. It apparently chose the same shade of pink color found in Pepto-Bismol as being the ultimate in therapeutic value if its argument is to be adopted. It is indeed peculiar that the particular shade of pink found in Pepto-Bismol is a necessary requirement of free competition where other shades and other colors are apparently rejected without reason appearing in the evidence. The finding here that the pink color, used by Sterling in its Pepsamar product, is non-functional and was adopted by Sterling as an intentional imitation of the appearance of the Pepto-Bismol product. . . .

". . . a word should be said relative to the prior use

(*Continued on page 375*)

FIRST... UNDER PRESSURE

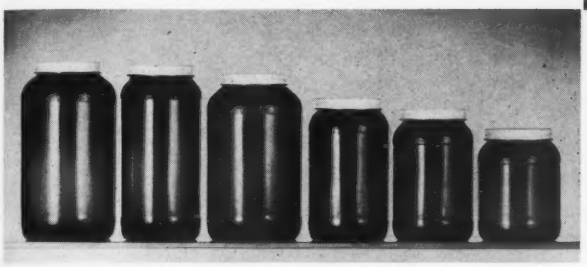
Pressure packaging is pushing many different kinds of products to the top in today's tougher sales race . . . with the help of Crown. Crown made the first aerosol package . . . has produced more than any other manufacturer . . . is the only source of both seamless and fabricated aerosol containers. Crown research, experience and facilities are unexcelled in the aerosol packaging field. Let us show you how to put your product under pressure . . . profitably.

for cans · closures · crowns · machinery CROWN

CROWN CORK & SEAL COMPANY, INC.
9300 Ashton Road, Philadelphia 36, Pa.

THE BILLION DOLLAR GLASS CONTAINER BUSINESS*

BY RICHARD L. CHENEY,
EXECUTIVE DIRECTOR,
GLASS CONTAINER MANUFACTURERS INSTITUTE, INC.



The roots of the glass container business, which was the first industry established on these American shores, go back 4,000 years into history. Even so, as a mass-production operation, we are only about 40 years old—an age when life really begins!

Actually, it was not until about 1917 that gob-feeding, the process whereby machines feed out gobs of molten glass in just the right quantity, came into wide operation, thus making the manufacture of glass containers a fully automatic process.

Because of our ancient history, people have tended to kill off the glass container business every time a new competitor of glass has come along. And there have been several! We can only say with Mark Twain that the reports have been grossly exaggerated.

Back in 1939 when the paper milk carton was introduced on a volume basis in supermarkets, many people gloomily predicted it as the beginning of the end of the faithful old milk bottle. But was it? Today's home delivery of milk is 90 per cent in glass. In fact, we are now selling just as many milk bottles as we did in 1939, and our market studies in leading cities indicate that glass is even returning to supermarkets.

Next came the beer can. Beer bottles, they said, were finished. Shortly thereafter, however, we were able to develop the economies of quart beer bottles as well as the no-deposit, no-return beer bottles, with the result that today 65 per cent of packaged beer is bottled in glass, and we are selling five times as many beer bottles as we were 20 years ago when the beer can was introduced.

The post-war boom in plastics had the gravediggers busy again. Yet, in the packaging of cosmetics where plastics—largely squeezable containers—have shown great growth, glass containers are currently enjoying their fastest rate of growth.

Conceivably, there must have been those who wondered why glass containers were used at all! They are heavy in comparison with paper and metal; they break; and they are old and familiar, lacking the glamour and excitement of the new and the different. But the fact is that this year, 1958, the glass container business is steadily growing and constitutes an important part of America's dynamic packaging industry. Moreover, everything we have been able to discover leads us to believe that, despite new materials, new fads, new fancies—and even though packaging has grown from a business of $1,690,000,000 to one of more than $10,000,000,000, we still account for approximately the same percentage of the total packaging market that we did twenty years ago.

The reasons for this are found in some of the advantages of glass containers. First of all and most basic, our primary raw material is sand. People use the expression "cheap as dirt," but I really think they mean sand—with the current cost of top soil, they *must* mean sand! Sand, that is, silica, makes up a considerable portion of the earth's surface, and is available in almost limitless quantities. Our other basic raw materials are soda ash and limestone. I know of no other product faced with less danger of a raw material shortage than glass containers.

This ready availability of low-cost raw materials combined with ever-improving manufacturing methods within the industry enables us to keep glass con-

*Abstracted from an address before the New York Society of Security Analysts.

A stock bottle CAN make a distinctive package.
You can prove this to yourself by making
a selection from the extensive Carr-Lowrey
line and letting us decorate it with
your own design. The round bottles
illustrated are our 440, 337
and L-33 styles.
SKIN
FRESHENER
337
L33
Cologne
4 FLUID OZ
Lanolin
Shampoo
GLASS
STIMULATES
SALES
CARR-LOWREY
GLASS CO.
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • New York Office: 415 MADISON AVE. • Chicago Office: 1572 MERCHANDISE MART

tainers competitive with respect to cost. Just to give you an idea, Bureau of Census figures indicate that glass containers are being sold at an average cost of $131 per ton. This is substantially less than the delivered price of a ton of bleached kraft food board—$200 per ton at the mill, or of tin plate—$206 per ton. It is even cheaper than the quoted price of newsprint—$136 per ton in New York. And remember, this is the price of finished, accurately dimensioned glass containers—all ready to be filled.

Another factor that keeps expanding the use of glass containers is the simple fact that people like them. They can see what they buy, which is important in point-of-purchase impulse sales, especially in the growing supermarket business. They can also see how much is left—a big reason, I believe, for our capture of virtually the entire instant coffee market, along with the fact, of course, that a jar can be quickly and easily resealed, thereby preserving the freshness and flavor of the contents.

Then too, there is a feeling of cleanliness about glass containers that is imperative in, for instance, drug packaging, and important in most other end uses. The resealing feature is also important, for such products as baby foods.

In the cosmetic industry, attractiveness of packaging is a vital sales factor. Glass containers lend themselves to all sorts of shapes, colors and designs, and they add a great deal of sparkle and style to a high -style business.

But probably the most important advantage of glass is that it never adds to, or takes away from, the taste of foods or beverages it transports. And this same neutral character of glass—its relative chemical inertness—we believe to be one of its primary assets in many applications other than the packaging of foods and beverages. Glass may be used to transport the most corrosive chemicals and the strongest acids, for indefinite periods—glass carboys made over fifty years ago are still in daily use.

You may have heard a year or so ago about 18 bottles of beer lost at sea some 250 years ago that were washed ashore in England. The beer, safely sealed in glass, was found to be still completely potable.

The adaptability of today's modern glass containers to high-speed, low-cost operations in the plants of our customers is evidenced by the fact that baby food jars, for example, are now being filled and processed at the rate of 700 per minute! Glass containers can be made in just about any shape and size. They can be fitted with any kind of closure from a cork to the new twist-off vacuum caps currently coming into wide use. They can be equipped with dispensers ranging from an eye-dropper to an aerosol top.

Moreover, the modern, glass container is capable of withstanding far more abuse than is generally believed, as is testified by the Final Report of the Transportation and Packing Survey, sponsored jointly by the railroads of the U.S.A. and the Fibre Box Association. Freight claims on foods and beverages in glass averaged only $10.00 per car against $55.00 for juices in tin and $44.00 for fruits and vegetables in tin.

This is not to say that canned goods have bad shipping characteristics. They haven't. The fact stands out, however, that freight claims on products in today's glass containers are lower than the average of all commodities checked by the railroads. The average claim of $29.00 per car compares with $10.00 for glass.

The year 1957 marked the third straight year in which shipments of new glass containers in the United States reached an all-time high. And last year shipments of new glass containers passed the twenty-billion mark for the first time. These 1957 shipments accounted for a dollar volume of $784,000,000. When you add to this an additional $274,000,000 for the closures for these containers, the glass container business entered for the first time in 1957 the ranks of those doing over a billion dollars a year.

Accounting for approximately 8 per cent (or 10 per cent, if you include closures) of a total packaging industry volume of more than $10,000,000,000, glass containers rank behind paper and fiber and steel containers, but well ahead of wooden, plastic, and aluminum packaging.

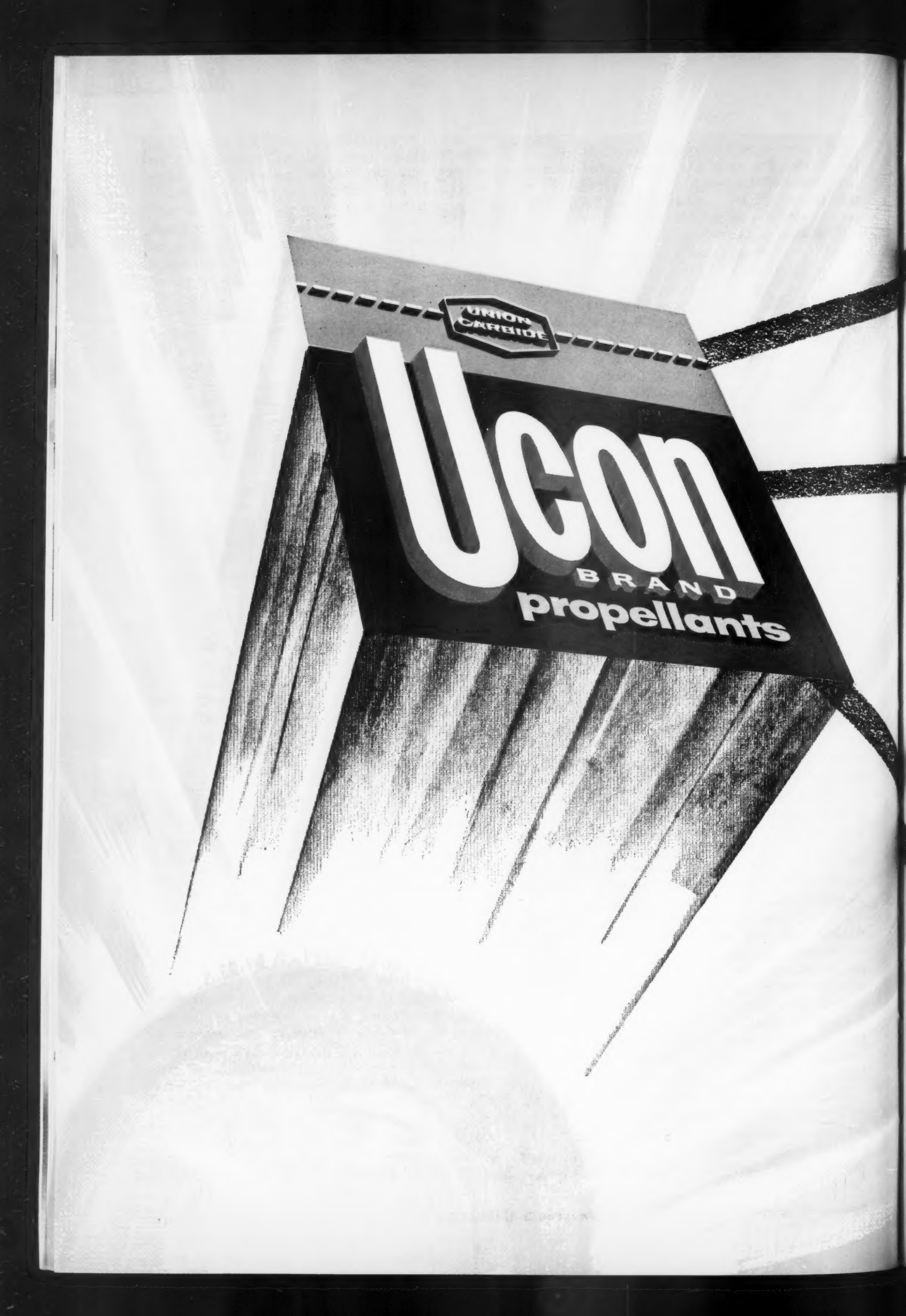
Just where do all these billions of new glass containers go? Some 41 per cent are used to package food, about 25 per cent for beverages, another 25 per cent for drugs and cosmetics, and about 9 per cent for household and industrial chemicals. Incidentally, none of these figures includes export which accounted last year for an additional half-billion containers, or slightly more than 2 per cent of total output.

Of course, these industry end-use figures are really very broad categories, each one covering a number of very large and important industries. This, we believe, assures our business of a certain stability.

From the standpoint of growth, then, these industries represent a cross section of the broadest kind of mass market, one that stands to benefit greatly from an expanding population. This is borne out by shipment figures from our member companies, representing about 92 per cent of all U.S. shipments, for the first quarter of 1958: glass container shipments established an all-time quarterly high of some 4.3 billion units, 3.6 per cent above the 4.1 billion units reported for the comparable period in 1957.

Our business keeps a close watch on the markets for glass containers. We carry on intensive and continuing studies of consumer attitudes. For instance, as early as 1954 our research showed that there was a large unsatisfied preference for glass packaging for intermittently used products such as spices and salad oils. With the design of the proper sizes and styles of glass containers, salad oil and instant coffee are virtually all glass-packed, and now the packers of spices are rapidly taking up the use of glass.

(*Continued on page 374*)


UNION CARBIDE
Ucon
BRAND
propellants

Coming soon...

Ucon BRAND propellants

Important News for the Aerosol Industry . . .

Soon, coming your way, UCON Propellants—in five top quality grades, 11-12-22-113-114, to meet your product specifications for pressure, stability, solubility, safety, and particle size.

With UCON Propellants You Will Get . . .

Market-Wise Representatives, every one technically trained, to help you choose the best combinations of UCON Propellants for your products. They will assist you, too, with practical advice on selection of containers, valves and equipment—provide useful technical and market data.

Technical Service to help fillers and marketers develop new aerosol product applications, improve present ones. Years of experience in the development and application of emulsions, surface coatings and solvents back up the high quality of the assistance which will be available to you.

Prompt Delivery from a nation-wide network of distribution points . . . the quantity you want, when you want it.

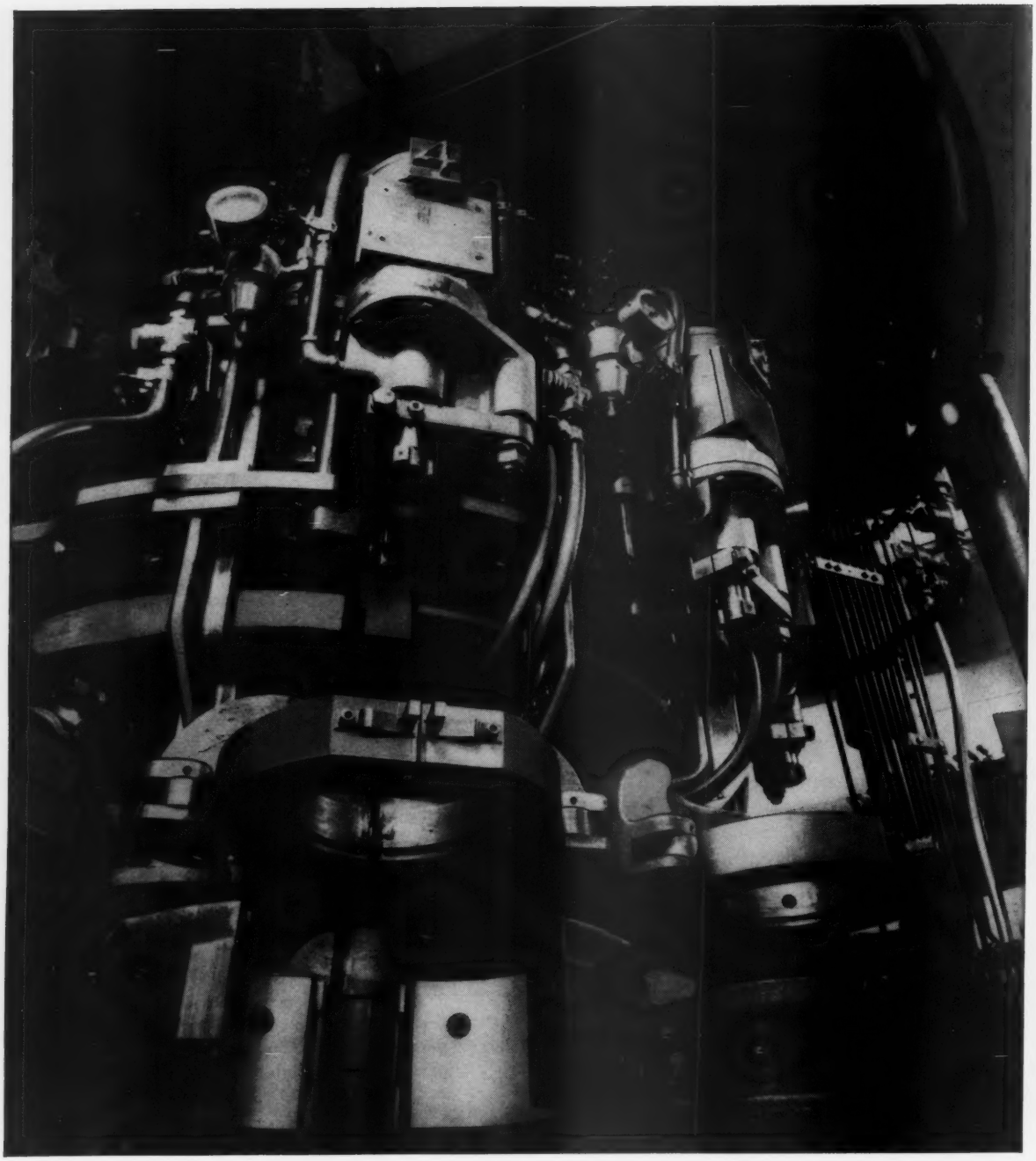
There will be a right UCON Propellant for practically every aerosol purpose. For more about these products of America's newest plant designed exclusively to produce highest quality fluorocarbons, write UCON Propellants, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd St., New York 17, N. Y.

"Ucon" and "Union Carbide" are registered trade marks of Union Carbide Corporation.

UCON Propellants will be available in five grades

UCON Propellant 11 Trichloromonofluoromethane
UCON Propellant 12 Dichlorodifluoromethane
UCON Propellant 22 Monochlorodifluoromethane
UCON Propellant 113 Trichlorotrifluoroethane
UCON Propellant 114 Dichlorotetrafluoroethane

UNION CARBIDE CHEMICALS COMPANY *Division of Union Carbide Corporation*



A NEW ENGINEERING BREAKTHROUGH in glass-making has been achieved by Knox engineers and scientists in the design and development of this new JK Machine. Another example of planned progress at Knox, the new JK is now furnishing Knox customers with more precise, more even-walled containers. It can also produce high-strength light-weighted glass. Its new standard in flexibility allows it to efficiently furnish wide-mouth containers in almost any size, in any quantity, to any specification. For more information, contact:

KNOX GLASS INCORPORATED · KNOX, PENNSYLVANIA

Colonial

SKILLED CRAFTSMEN

specialize in

SERVICE

SKILLED CRAFTSMANSHIP, specialized machinery and prompt service have been hallmarks of Colonial Applicator Company for two decades. Buyers "in the know" have learned that when dealing with Colonial they can be sure of faithful attention to the smallest detail of their order.

Experienced Colonial craftsmen and modern automatic machinery combine to produce a quality product. Sample setups are usually shipped on the day that requests are received. Large inventories are kept to insure immediate service on stock items.

Colonial technicians will make free samples to your exact specifications, and our Special Service Department provides precision calibration in silk screening and hot stamping, too. Contact a Colonial representative listed below or write to us directly.

Specialists in Glass or Plastic Droppers and Assemblies for Nearly a Quarter of a Century

Packaging Institute's
20th Annual
National Packaging Forum
Oct. 13, 14, 15, 1958
Edgewater Beach Hotel
Chicago, Ill.

Represented by:

CHARLES E. SCHWAB
122 E. 42 St.
New York 17, N. Y.
OXford 7-0760

ALLEN J. GRETSCH
327 LaSalle St.
Chicago 4, Ill.
WAbash 2-1619

HARRY M. GRABER
811 S. 53rd St.
Philadelphia, Pa.
GRanite 6-6311

GABLER & GABLER
435 S. LaCienega Blvd.
Los Angeles 48, Cal.
BRadshaw 2-2995

RICHARDS GLASS COMPANY
102 Atlantic Ave.
Toronto 3, Canada
LEnox 2-3311

COLONIAL APPLICATOR CO.

VINELAND, NEW JERSEY

FOR PRESSURE CANS

WITH AN UNRIVALED

SALES RECORD...

FOLLOW THE LEADERS TO CANCO

More shaving lather is sold in Canco pressure cans than in all other makes combined. Naturally, there are good reasons for this success!

Canco makes a full line of *guaranteed* pressure cans in seven sizes—with standard one-inch cup openings or individually styled tops. To give you a round-the-can label design, Canco has developed the first commercial coated side-seam.

Canco also offers experienced assistance from technical service experts and other specialists. And through nationwide consumer advertising, Canco has helped boost sales for all its customers in the aerosol industry! So, for *any* pressure product, take the leaders' tip—come to Canco first!

AMERICAN CAN COMPANY

Just Printed! Colorful folder on Canco products and services in the aerosol field. For a free copy write to American Can Company, 100 Park Ave., New York 17, N.Y.

Packaging and Selling

Unique Business

Just exactly 25 years ago, a young, middle-aged man walked into the office of *Beauty Fashion* magazine and said, "I have just sold out my business, that is a large sugar interest, and instead of retiring I have decided to go into the cosmetic business. I would like to take 8 full pages in Beauty Fashion, but I am very insistent that they should be marked with a sequence of numbers which I consider important."

After our first shock of stunned surprise, we discovered that Mr. J. E. Madding had a name for his company, that is Imperial Formula, but very little else. That is, he had the formulas for his product but no factory or manufacturing arrangements, the packages were in the process of being created and he had no office or salesmen or organization of any kind. In fact, he just wanted to get started.

A great many people who were active in the industry 25 years ago, will remember the startled surprise of the industry in reading these 8 consecutive pages of advertising announcing a new company which had no background as a company, product or personnel. In fact, it was the announcement of a completely unknown stranger.

These were the days before multiple advertising, which is currently creating so much interest, had even been thought of. Hardly anybody before had been so extravagant and reckless as to take 8 pages in one issue of a magazine, and practically no one could understand why a brand new company, without any trade history or connections in personnel, product or financing would dare do such a thing.

The universal reaction was that surely these people must have something. For the next few weeks after this advertising appeared, Mr. Madding, in a small, newly found office in Rockefeller Center, went through a period of heavy seige. It did look as if every important store buyer in the country as well as most of the competitors were insistent on finding out what it was all about.

Not long after that, Mr. Madding and his Imperial Formula more or less disappeared from sight and for several years was a casual name at rare intervals in trade gossip. After 10 or 15 years the word began to leak out every once in a while that Imperial Formula was sold in this or that important store and was really doing an extraordinary business in that particular store.

A few years ago the head of one of the important cosmetic companies, intrigued and puzzled at the way in which this small, mystery company was doing such a large business in several important stores, hired a market investigator to survey the company operations and report the secret of his success.

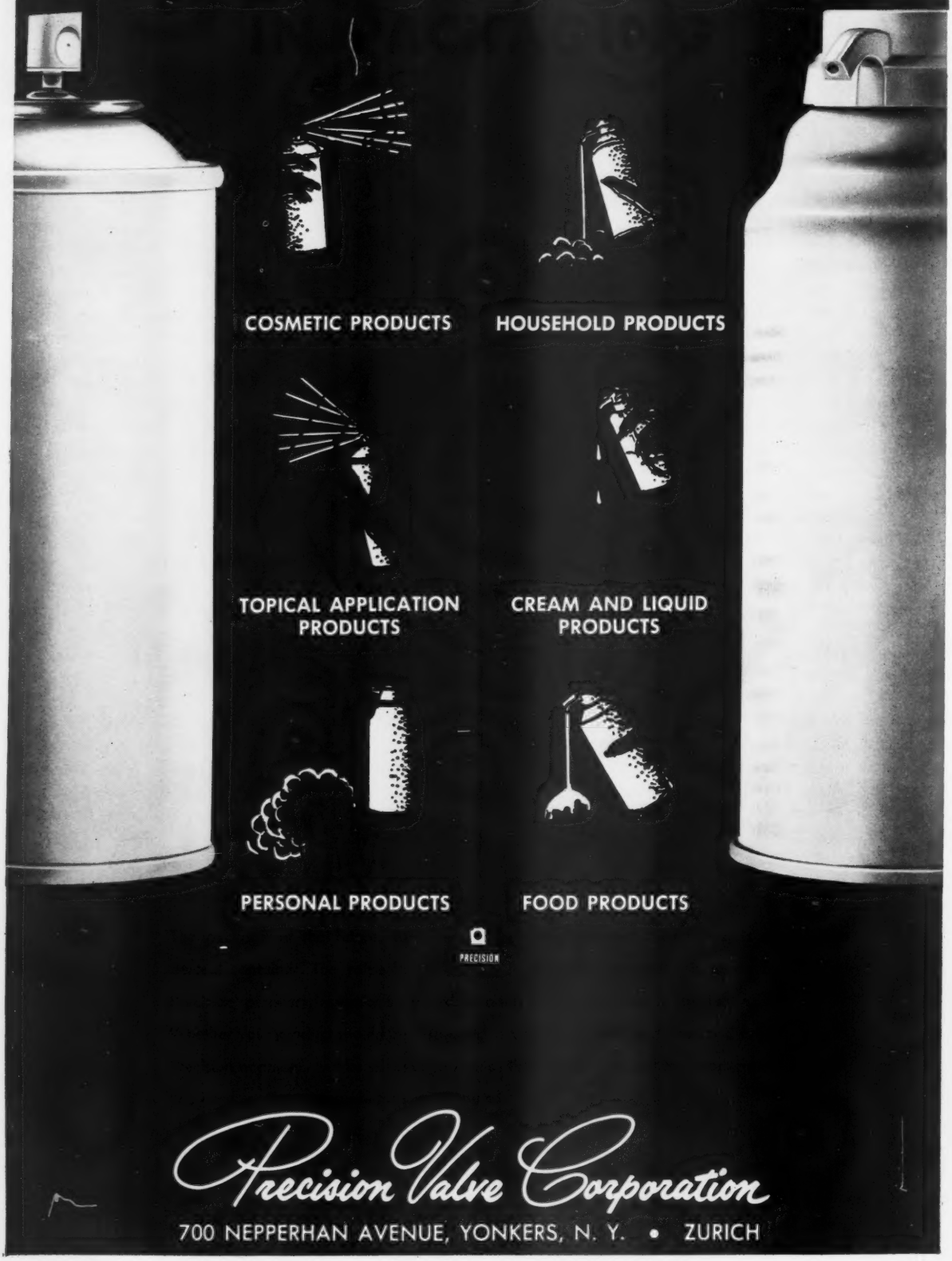
As we were told, this market report verified the impression that Imperial Formula, although it was distributed in only a very limited, selected number of stores, was really doing an extraordinary volume in each of these stores and that the reason for this volume was largely the intimate basis of selling cooperation between the store and the manufacturer based upon a store franchise for complete control over the entire store area.

A few days ago in this early August, we were startled to be told that Mr. Madding was again in the office on a visit to our organization. Although none of us had literally seen Mr. Madding for 25 years, it is amazing how this interval slipped away and how vivid the memories of his first visit became as we talked about the events of that exciting period.

Mr. Madding told us that in addition to dropping in to say hello he had also, after an interval of 25 years, decided that it was again time to take an advertisement in *Beauty Fashion* announcing that he had completed 25 years of business. We told him that this is probably one of the longest intervals between an order and a repeat order in trade history, but for various sentimental reasons as well as a memory of that stimulating period which proved what advertising can really do under favorable circumstances, we were delighted to see Imperial Formula again in *Beauty Fashion.*

We would like to write a story about Imperial Formula and perhaps some day we will be able to. In the meantime, we acquired very little information about this operation that we can pass on to our readers. Mr. Madding told us that he has definitely adopted a philosophy of hiding, as an essential element in his business. He said that, with a limited number of accounts, how limited we do not know but we guess below 50, he has gone about as far as he wants in building his business. He stated that he was doing a substantial volume in gross sales—just about as much volume as he wants to make—and that he was making as much money personally as he could think of any way to use. In addition to a three-month rest in Europe during each year plus two or three months in his favorite part of the United States, that is the Pacific Coast, which he gives over to working with two accounts, and then a few months in the

THE FUTURE



Precision Valve Corporation

700 NEPPERHAN AVENUE, YONKERS, N. Y. • ZURICH

Southwest, as well as an enjoyable period in New York City, he has just about organized his life from the viewpoint of a balance of work against leisure and a balance of income with desires.

We wonder how many industries there are in which there could be a Mr. Madding and an Imperial Formula. By that we mean a highly personalized business, a small intimate business, a business with a well-thought-out, philosophical basis which, in turn, provides a life which has been exactly tailored to the wishes and the inclination of the individual. A life that is satisfying in its achievement in a business way and, from what we gathered, very thoroughly satisfying for the manner in which that facilitates the fulfillment of a desired way of life.

Inflation and Selling Cost

In all the theories as to what is causing inflation, the big blame has been placed upon labor, manufacturers' pricing policies, the treasury, the Federal Reserve Bank and government debt policies, to mention just a few.

Nobody yet, so far as we know, has mentioned the rising cost of distribution as a very important factor in increasing consumer goods prices, in maintaining high prices and in establishing a stout bulwark of resistance to declining prices.

There have been some efforts to break down this long-term trend of increasing distribution costs, notably the discount house, but, so far, anything of this sort has been minor in a broad, swift-flowing current of higher costs and higher prices.

Just recently a survey was made among leading manufacturers in one branch of the apparel field by a buying organization using the question, "What have you advertised for me lately?" According to the manufacturers in this group, this is increasingly a direct question by buyers. These manufacturers say that this field has not been an important national advertiser until the last 10 to 15 years. Now, buyers are so impressed that their primary question in relationship between buyer and seller is, "What advertising are you going to do?" It seems to be a matter of general acceptance in American marketing that the manufacturers should take over more and more of the cost of selling goods to the consumer. Twenty-five years ago the major retailers in this country considered that a very high proportion of the selling effect in their community at retail should be done by their own creative marketing. For this reason they demanded and received a high percentage of the consumer's dollar as necessary in marketing expense for these sales effects.

Now, almost universally retailers are gradually abdicating most of the selling effort throwing it back upon the manufacturers who must invest enormous sums in advertising, and yet, these retailers are still demanding as much or more of the consumer's dollar than they receive as a selling organization.

It would be interesting to find out what the basic cost of distributing goods in America could be, that is, the cost of the merely functional job of moving goods from the factory to the consumer. It would be even more interesting to find out how much has been added to this to justify the competitive struggle we consider an essential part of capitalism. It should be noted that in some fields it has become necessary to maintain the manufacturer's salesmen, the manufacturer's consumer advertising, additional manufacturer's expense at the point of sale in cooperative advertising, in sales commissions to retail sales folks and in other ways—which process must be repeated all over again by the retailer with growing demands for more money based upon his needs in selling.

Some day, undoubtedly, the question will be asked either by the eggheads or the politicians: "How far are we going to go in continuously increasing the cost of moving goods from the factory to the consumer?"

Phony Obsolescence

There is an obvious trend in new product development in other industries that may well be felt in this industry. Detroit is a good place to begin as an illustration of what is happening.

In the automobile industry, as well as in household utilities, planned obsolescence has been the keystone of a huge business expansion based upon an industry philosophy that the customer must be pushed, into discarding his present product and buying a new one almost every year.

Now, according to a lot of informed opinions in Detroit, as well as throughout the industry, there is a growing opinion that the customer has been pushed too far by synthetic obsolescence and is beginning to revolt.

In other words, look out for phony obsolescence, that is, obsolescence with no other excuse other than the ambition of the manufacturer to sell something new before a customer has received proper use and satisfaction from the previous purchase.

Again, in Detroit, there is a growing feeling that the customer has had a little bit too much in the way of fancy frills thrown at him in two-tone colors, in pastel colors and weird and impractical designs. We may not get simplification this year, but never let anyone tell you that Detroit is not thoroughly alarmed at a possible consumer trend away from doodads, frills and trivial superfluities.

In other words, while new product development is going to go right on being important in this dynamic economy of ours, there is good reason to believe that the customer is getting thoroughly fed up with new products that are not fundamentally justified.

We feel quite sure that the future will demand more brains, more creative ability, more money and more time for the new product that will pay for its introduction.

BEN SOMOROFF

Give YOUR PRODUCT the look of elegance with *Lambert* engraving

There is no substitute for engraving and engine turning
when you wish to add a look of elegance to your product.
But elegance and high cost are *not* synonymous with Lambert engine turning
. . . for here in Attleboro we have coupled the art of
single tool craftsmanship with our exclusive *multitool* process,
to give you *quality in quantity*.

Quality-in-Quantity
engine turning
makes elegance practical

If you would like us
to ornament a sample
— to demonstrate how
Lambert engine turning can make
your product elegant in all but cost
— please write enclosing several shells.
There is no cost or obligation.

Lambert Engraving Company,
Attleboro, Massachusetts.

Spending Habits

Supermarket statisticians have been having quite a debate on how long it takes shoppers to make up their mind to purchase. According to one research organization, the average time is eight seconds. Other experts dispute this.

There may be something to this research and debate that is over our head. Frankly, we cannot for the life of us figure out what difference it makes whether the customer takes eight or 80 seconds.

The only value we can see in this debate is that it might verify a strong suspicion which is beginning to develop in merchandising circles that the impulse sale today is not quite what it used to be.

We would guess that if it takes a customer eight seconds to make up his mind with a full pocketbook, it might take 12 seconds if that pocketbook has a 10 per cent hole in it and 20 seconds if it has a 15 per cent hole in it, and so on. In other words, the time taken to make up the mind to buy may be the best index of the status of impulse purchasing, and this, in turn, about the best possible index of the spending habits of consumers at this particular moment.

New Values Needed

It would seem that the purchasing agents who have had the responsibility of buying materials are not too heavily sold on the kind of products their companies are turning out. Here's what the president of the National Association of Purchasing Agents had to say recently. "Many businesses have had it so easy and lush for the past eight or ten years that they have become careless in the matter of giving value in their products that will enable them to stand up in competition with other commodities and products that are pushing to get the consumers' dollars."

New Package

Proctor & Gamble is using a "see-through" tube of polyethylene plastic for its Press Concentrate Shampoo. This new tube comes in an "open-face" carton newly designed for greater product visibility.

Blame Research

One man who does not believe that research is perfect or the miracle of this age is an advertising agency man in Chicago.

According to this man, "The average agency is scared to death. If it can prove something by research, this takes the heat off of their creative efforts." We think we know what he means—that research should not feed advertising ideas to the advertising agency but that the advertising agency through their creative thinking should feed research ideas to the research department.

Impulse Pills

Believe it or not, pills are being rated as fast impulse items in a Salt Lake City suburban supermarket. A self-service display on a special table with over 100 varieties of pills and tablets make up a prominent display in this store. According to the store manager, "It is one of our top gross profit displays and gets plenty of sales action." The store manager also notes that most of these products are tied in with television and radio campaigns.

We do not know what kind of an image this supermarket is building for itself, but it certainly must be rather confusing to the people who come in to order the family meal. The reason for this is that according to the store manager the impulse is "get fat pills—get thin pills—keep awake pills—go to sleep pills."

We suggest yet another thought to this manager of a thriving food store: that he also is building up impulses and reminders of headaches, stomach aches and quite a variety of other things that tend to spoil the appetite.

Super-Equipment

One of the largest experiments by a supermarket in health and beauty products is now taking place at one of the Philadelphia stores of the Pen Fruit Company.

This 46,500-square-foot market is devoting 1,200 square feet to a health and beauty department which will combine self service and a service department with sales people and demonstrators.

The self-service section will contain 180 feet of counter space, five to six shelves high with eight promotional areas to feature special items and deals; the service section will cover an area of 22 feet by 15 feet and contain 12 glass showcases.

The object of the service counter is to enable the store to stock merchandise that requires sales and demonstration.

Brand Name Failure

It has been a long time since the passing of a brand name has produced so many sad and sentimental obituaries as took place with the passing of the Packard name.

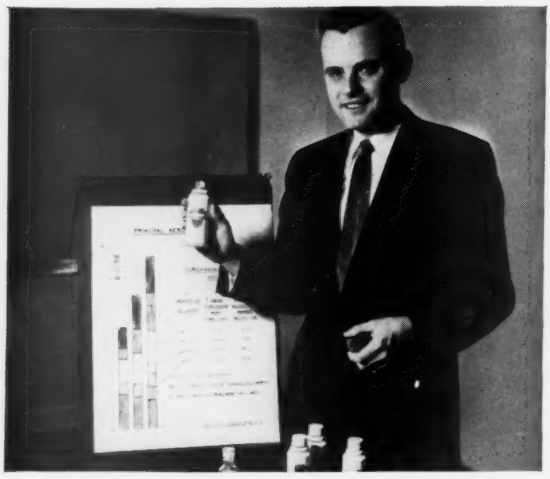
That this was a trade mark with a long, distinguished history that finally ended on a period of unhappy deterioration cannot be denied. Most middle-aged people today remember the Packard when it was the one outstanding symbol of social status that unerringly identified a man of distinction.

In this industry we are so used to the hurried rise and fall of brand names that it is difficult for us to stop for a moment and realize that here was a name at one time universally known, universally admired, used to identify a product of fine quality, distinctive individuality and with all sorts of intangible values attached to it that would arouse the admiration of a perfume manufacturer. And yet, in spite of the universal acceptance of this brand name, something happened to the product or its personality or its marketing policy that permitted this fine name to go down the drain in failure.

TO AEROSOL MARKETERS... *Present and Prospective...*

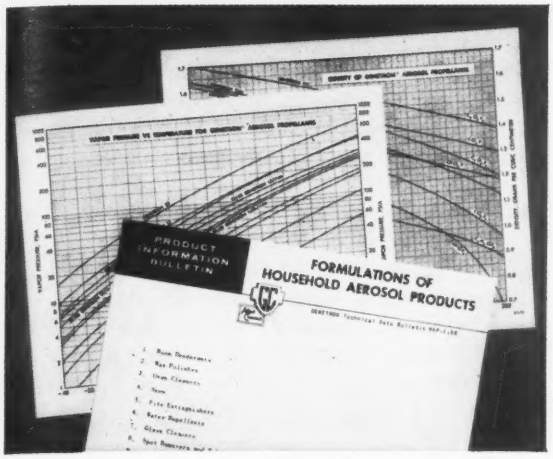
GENERAL CHEMICAL OFFERS THESE HELPFUL SERVICES

Expert Technical Service, Formulation Assistance. General Chemical has one of America's finest aerosol laboratories—completely equipped for testing and development work. Its services have guided many aerosol marketers in their development programs and are readily available to you. With General Chemical's help you may be able to save time and money in arriving at a compatible aerosol formulation of your product for evaluation and final testing by your own research and marketing experts.

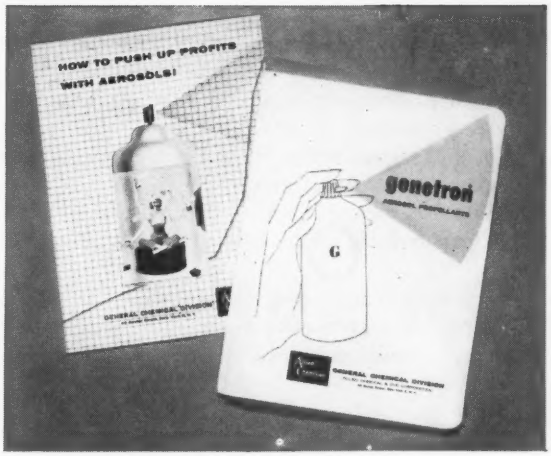


Market Data. General Chemical has prepared a fact-packed marketing and sales presentation to help you in a preliminary survey of the aerosol field and in planning your marketing program. It includes sales projections for aerosol and non-aerosol segments of many markets, prepared by our Market Surveys Department, as well as a host of other helpful facts and figures. To arrange for a special presentation, simply call or write General Chemical's "Genetron" Department.

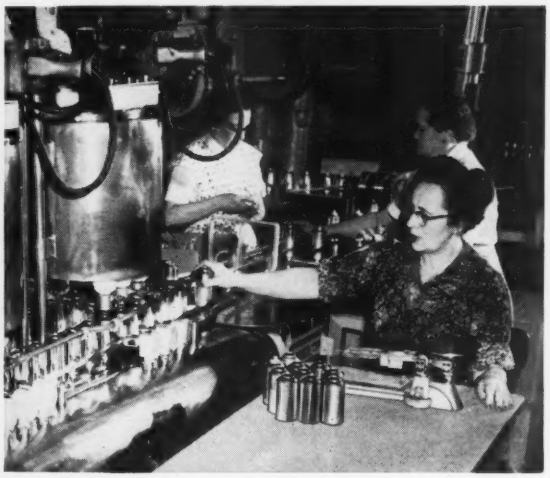
GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.



Technical Data. General Chemical offers technical information ranging from the physical properties of "Genetron" propellants to formulation data—including many new and promising formulations developed or tested in our laboratories. Rapid strides in aerosol chemistry and technology have rendered obsolete many of yesterday's "conclusions" about the economics and practicality of aerosol packaging for certain products. We will be glad to review such products with you in light of current knowledge. Ask to be put on our mailing list for new technical bulletins.



Basic "How To" Manuals. Two free booklets are available on request. *"How to Push Up Profits with Aerosols"* contains valuable market and technical data . . . reliable sources for contract filling, aerosol containers of every type, valves, etc. . . . brief descriptions of the complete line of "Genetron" aerosol propellants. *"Genetron Aerosol Propellants"* is a more technical manual, with extensive data on the physical properties of "Genetron" propellants and mixes, technical service, commercial filling methods and other topics of interest to the aerosol manufacturer.



Field Assistance. General's aerosol experts are always available to help solve problems involving the storage and handling of propellants in your plant and filling line. You may find it profitable to discuss your filling line operation with a General Chemical technical representative, from point of view of operating efficiency and economy, propellant handling, etc. Technical manuals on storage and handling of "Genetron" aerosol propellants are available on request.

A Full Line of Aerosol Propellants. All standard fluorinated hydrocarbon propellants and mixes are available in the "Genetron" line—also special propellant mixes where unusual properties are required. The "Genetrons" provide the right propellant for virtually *every* aerosol need . . . are first choice of many leading fillers and marketers for formulating household, drug, cosmetic, agricultural, industrial and other types of aerosol products. Write today for further information.

Allied Chemical

genetron®
AEROSOL PROPELLANTS
Putting the "push" in America's finest aerosols

Negro Market

"Royal Crown Hairdressing is the largest selling Negro hairdressing anywhere and it is also the most nationally advertised hairdressing." This statement is made in literature to the retail trade by J. Strickland & Co. of Memphis, Tenn., the manufacturers.

According to this trade literature America's 17,000,000 Negroes spend as much each year as the U. S. export trade or the entire sales volume of Canada.

According to a study of consumer expenditures by the University of Pennsylvania, the average Negro customer spends one-third more of his income for beauty aid products than the average of other customers.

The Negro population has increased enormously during the last decade and according to this promotion literature Negro per capita buying income has increased 437 per cent.

In spite of this huge market, we have seen very little statistical data or market analysis specifically covering the Negro market. We do not know what percentage of cosmetics bought by the Negroes are clearly identified as Negro cosmetics and what percentage are purchased among the general well-known brands of the industry. It would seem that this market would warrant some very substantial motivation on market studies.

New Toothbrushes for Old?

It sort of looks as if the toothbrush is the most undersold American branded prdouct. This is curious because not very long ago the toothbrush was a widely advertised, highly competitive and vigorously promoted product.

According to a recent 1,000-family survey conducted by the DuPont Co., maker of synthetic brush bristles, two out of every three Americans need a new toothbrush and should be sold one for their own health's sake.

Thousands of families were questioned by Dr. Robert G. Kesel, head of the department of Applied Materia Medica at the University of Illinois College of Dentistry.

Out of 2,032 brushes received, Dr. Kesel found that a total of 1,219 were unusable, 700 were found to be in usable condition, and 90 were graded as questionable.

Dr. Kesel graded brushes as unusable if they had bent, broken, or matted bristles, or were caked with dentifrice and in an unsanitary condition.

Eighty per cent of the toothbrushes found to be in unusable condition were also no more than a year old. In fact, the average age of the brushes in this catagory was just one year.

It strikes us as remarkable that an American industry with a branded product that has had a number of technological improvements should find itself in such a position that two out of three American families are coasting along on an old worn-out product with a questionable health factor.

Perhaps this survey will open the way for a new era of competitive energy by this industry aimed at putting a new toothbrush or at least a functionally good toothbrush in every American's hands.

Data Book

We have just received a copy of the Metropolitan Daily Newspaper Market Data Book. This very useful compilation of market data compiled and published by the *Richmond Times-Dispatch* and *Newspaper Leader* of Richmond, Va. contains a great deal of valuable buying data for the major metropolitan markets.

New Cosmetics

Something must be happening in California. After quite a long time in the doldrums with respect to the starting up of new cosmetic companies, all of a sudden we hear of two new ones that are filled with promise for exciting activity this fall, or at least that is what their publicity agent says.

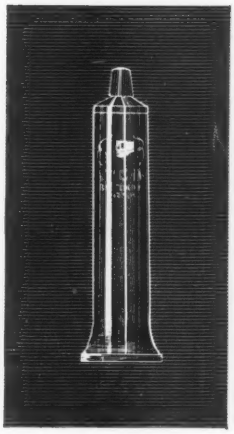
The first announcement was from our old friend, Joe Gardner, of the public relations-publicity company in Beverly Hills of Gardner, Ross and Holmes. Joe Gardner, of the public relations-publicity com- is well known to this industry as a long-time vice-president and sales director of Colonial Dames and also at one time president of de Heriot, Inc., has resigned to become vice-president and general manager of Cora Galenti Enterprises.

The Cora Galenti Clinic has been operating in Hollywood for approximately 20 years. This clinic has specialized in facial rejuvenation. Now a new organization has been formed, Cora Galenti Enterprises, to market nationally in selected distribution a few Cora Galenti formulas. According to Joe, these products and their packaging and prices will be announced very soon, probably by the time this issue is received, and they will be unusual in every way. There was even a hint over the phone that this might be the highest priced face cream in cosmetic history.

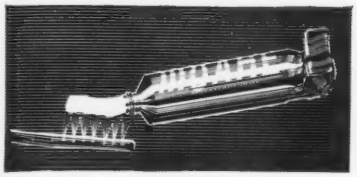
Another new line on which we have reports but no direct information is a new company, Golden Goddess, Inc. This line has been formed to market eight new products which will include a body lotion, perfume, cologne, lipstick, foundation cream and hand cream. This is to be a very, very prestige line with the slogan, "The Sacred Secret of Beautiful Women." Promotions will start in September and the company states that they will spend over $1,000,000 in advertising.

The new president, Howard Isbell, is also a vice-president of L. C. Whitney Distributing Corp. of Chicago, a merchandiser of kitchen appliances. Other top executives are said to be D. G. Benedec and Robert Hallett, both of California and both formerly chemical consultants.

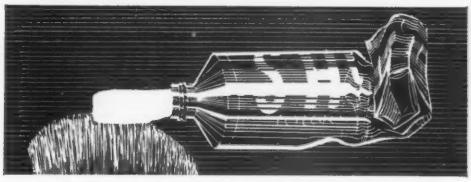
Peerless tubes deli



ver your product just the way your cus tomer wants it. In the famil iar foolproof pack age that guarantees long shelf life...exactly the right amount each time...with



a constant reminder of how much is left. In the consistency he likes... every bit of it... last



squeeze as good as the first. Peerless tubes deliver cus tomer satisfaction and the repeat sales that go with it.

No finer metal containers made anywhere
Peerless Tube Company, Bloomfield, N. J.

MARYLAND GLASS DESIGNERS WORK CLOSELY WITH MOLDS FOR DESIGN FIDELITY...

BUT ESSENTIALLY

Package design begins with an idea

Every craftsman knows his tools, but the creative package designer must do more—first he must bring an idea to life. An idea that says Yes to questions like: Is this container distinctive? Will it sell on the shelf? Does it pack properly, ship safely? Our design department specializes in designs that stop the eye . . . start the sale. For an affirmative solution to your design problems, contact Maryland Glass Corporation, 2147-53 Wicomico St., Baltimore 30, Md.

STOCK DESIGNS
A variety in blue or flint glass . . . in a complete range of sizes . . . is ready for immediate shipment.

PACK TO ATTRACT IN

MARYLAND GLASS

Blue or Flint · Jars and Bottles

News in Packaging . . .

Ludlow Papers Announces New Plastics

The Flex-l process, a new manufacturing technique perfected by Ludlow Papers, Inc., has resulted in the development of several completely new unsupported thermoplastic films: Proplene, a clear, high-gloss packaging film; Caplene, a strong film expected to be competitive with polyester films; and two foamed products, Orthofoam and Metafoam, made from low and medium density polyethylene, respectively.

The company states that the Flex-l process produces outstanding gloss in all thermoplastic films; improvement of properties through molecular orientation; the formation of products at optimum crystallinity; and the ability to convert conventional, medium and higher density polyethylene to clear and glossy films. The two foamed products offer insulation and are effective moisture barriers.

Trademarks have been applied for by Ludlow for the name of the process as well as the names of these new products.

Thau Named

Charles L. Thau has been appointed Assistant Manager of the distribution department of Abbott Laboratories, according to Herbert S. Wilkinson, vice-president, sales. Mr. Thau has been with the firm since 1931.

R-gene, an intravenous solution of 5 per cent L-arginine monohydrochloride in water, for treating hepatic coma by removing excess toxic ammonia from the blood, by Cutter Laboratories. Available in 500 cc. flasks complete with disposable injection equipment and a 50 cc. Ambot of 50% dextrose solution.

Crown Develops Metallic Coating for Aerosols

In response to a request from Wellaflex Company of the Capetown, Crown Cork & Seal Company has developed an actual metallic coating for the South African firm's aerosol container for hair spray, Wellaflex Invisible Hairnet with Lanolin. The container has a uniform, uninterrupted metallic coating in a chrome finish providing the metallic luster formerly approached by paper labels, with the added advantages of being waterproof, fadeproof, resistant to abrasion and having better shelf appearance and longer life.

As a result of the research on this particular finish, Crown engineers report that they can now produce metallic coatings in a variety of colors and intensities.

Continental Can Division Appointments

Arthur F. Lange, Jr., has been appointed Chicago district sales manager for the Hazel-Atlas Division of Continental Can Company, according to an announcement by the division's general manager of sales, John W. Thayer. Mr. Lange has been with the firm since 1930.

It has also been announced, by the company's Eastern Metal Division vice-president Orren R. McJunkins, that Walter P. Murray has been appointed to the newly created position of executive representative. George F. Henschel has been appointed sales manager of the division, succeeding Mr. Murray.

Flaherty and Kreps Promoted

Patrick F. Flaherty has been named manager of closure sales for the New York region by Crown Cork & Seal Company, according to an announcement by Daniel F. Sheehy, northeast regional sales manager. Mr. Flaherty, who joined Crown in 1931, retains his present responsibilities and chairmanship of the firm's Baltimore closure committee.

Mr. Sheehy has also announced the appointment of F. Stanley Kreps as manager of can sales for the company's New York region. Mr. Kreps, formerly manager of national accounts, joined the firm in 1936.

New Vazol medicated spray vaporizer by Lanolin Plus, Inc., is now nationally distributed. A medicated, mentholated, antiseptic aerosol for relief of colds, laryngitis, hay fever and other such discomforts, it retails for $1.69, is distributed by State Pharmacal Company, subsidiary of Lanolin Plus.

Glueable Polyethylene Available

The Lowe Paper Company of Ridgefield, N. J., has developed a process that makes it possible for packagers to glue polyethylene-coated paper and boxboard with low-cost dextrin and starch adhesives.

The first commercial application of the Lowe process is a folding box for packaging personal hygiene products for the Norwich Pharmacal Company.

Reynolds Expansion

With the completion of expansion programs at two California locations by the year's end, Reynolds Metals Company will be manufacturing aluminum foil containers and foil-laminated cartons on the West Coast for the first time, according to Paul Murphy, vice-president, Reynolds Aluminum Sales Company. The new plants are in Torrence and Vernon.

Cream-Oil by Wildroot, now introduced in a nitrogen-charged pressure can by the American Can Company. Consistency of the product made possible pressurizing without a formula change. The propellant eliminates shaking of the can before application. Container holds 6 ounces, and retails for about 98 cents.

THE POPULAR

is NOW AVAILABLE IN A LARGER SIZE

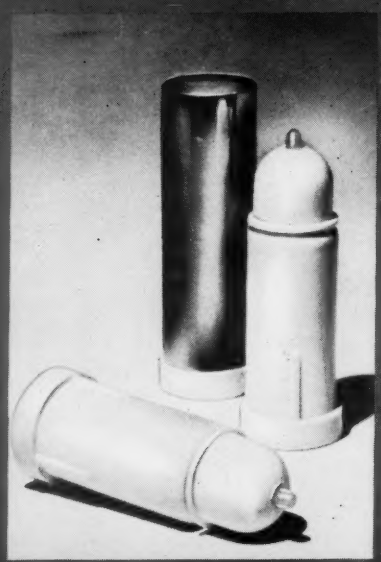
because you asked for it!!!

RICHFORD TOUCH-N-FLO*

PURSE DISPENSER

* U. S. PATENT

the 18 mm. TOUCH-N-FLO with our new Victoria Bottle.



So dramatically successful in its small plastic container style with gold-metal cap.

And so practical in a glass bottle with slip-on brass cap version.

the NEW 18 mm. TOUCH-N-FLO fits *any* Bottle *with* 18/410 *Neck.*

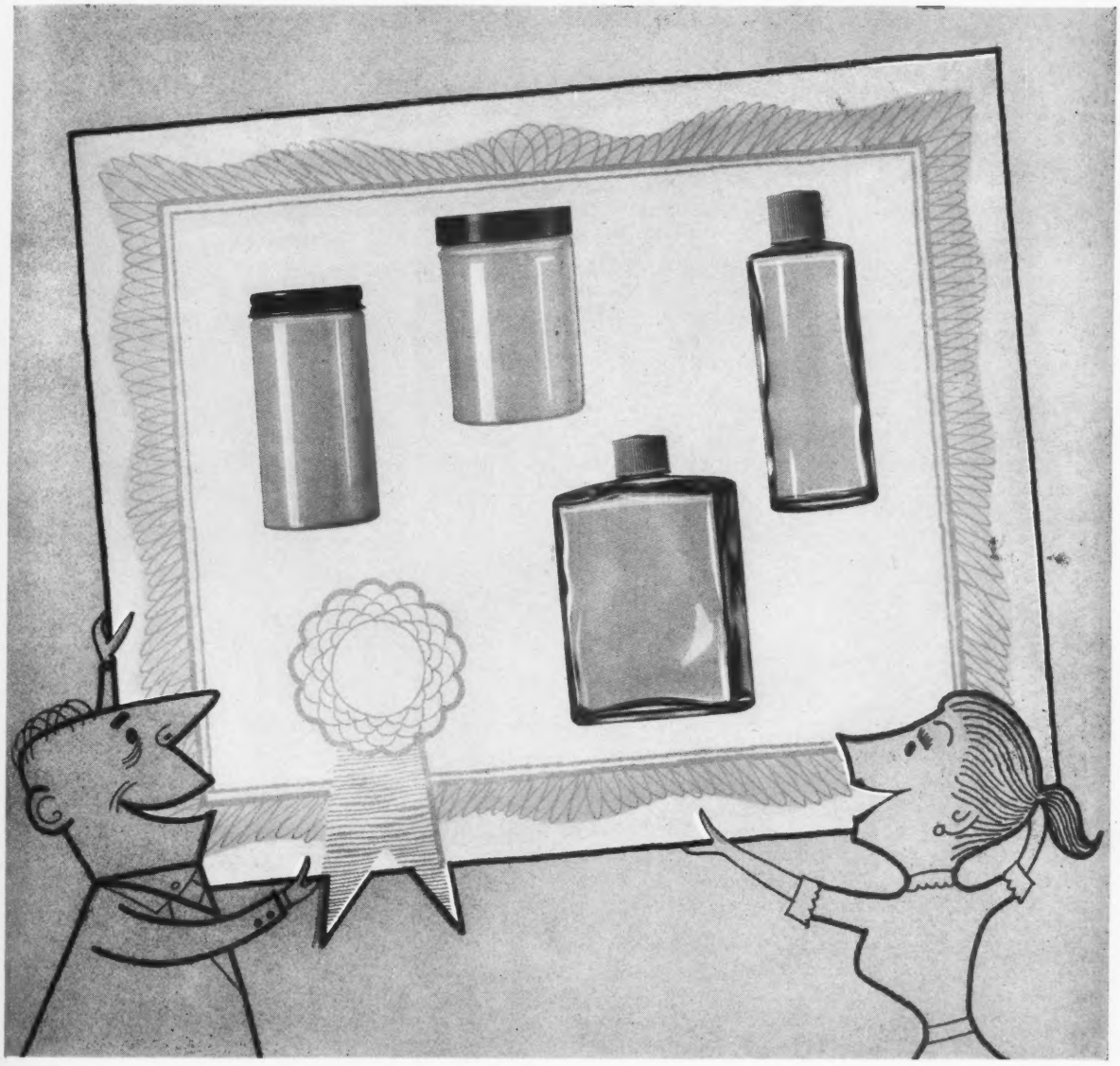
Write now for samples and prices.

RICHFORD CORPORATION

Touch-n-Flo is ideal for cream perfumes or cream sachets, powder, liquid soaps, lotions, and deodorants —contents always flow with a touch, yet never leak.

Office & Plant: 3618 Oceanside Rd., Oceanside, N. Y.
Show Rooms: 350 5th Ave., New York

...glamour in glass!



...the stock that makes a bond

Beautiful opal and flint H-A *Stock* Containers make a lasting bond between your product and the consumer. H-A Opal jars are straight, light—strong, white. They hide air-pockets, and are straight-sided for easy filling. And permanent "Deco-fired" labels can be economically applied at the time of manufacture. *Give your products a very special appeal*—**call or write H-A now.**

HAZEL-ATLAS GLASS division of CONTINENTAL CAN COMPANY

WHEELING, WEST VIRGINIA

A PACKAGING TEAM NEEDS

One of the most important factors in the success of a product is its package. That's why many companies are making packaging decisions *team* decisions. But to make your packaging team complete, it needs an outside viewpoint. It needs an Anchor Man... the man from Anchor Hocking!

He is a glass packaging specialist, backed by capable package engineering and research technicians, modern laboratory and manufacturing facilities. He can strengthen your packaging team in evaluating and selecting glass containers and colors that will do the best job for you, your retailers and consumers. He can also help your team in the selection of a closure that will

AN ANCHOR MAN!

most completely and economically satisfy your diverse and specialized requirements.

Your Anchor Man is a good man to know ... a good man to have on your packaging team. Contact him! Anchor Hocking Glass Corporation, Lancaster, Ohio. Branch offices in all principal cities.

ANCHOR HOCKING
Glass Containers and Closures

Custom quality for your product

Note the smart, classic contours . . . the broad face for label impact and product recognition . . . the large size impression to emphasize your product's value. Add the facts that this new plastic bottle is lightweight, unbreakable, colorable and can be adapted to squeeze-spray or controlled dispensing.

Makes quite a package! And you can put it to work immediately and economically.

The NEW OBLONG is available from stock in natural polyethylene in 2- and 4-ounce sizes.

Plax stock line now comprises over 200 different container shapes and sizes. Includes Ovals, Tapered Ovals, Tapered Rounds, Boston Rounds, Cylinders, Oblongs and Square Modernes . . . as well as the remarkable new low-cost cylinders of rigid high-density polyethylene for household products.

PLAX **PLAX CORPORATION • P. O. BOX 1019 • HARTFORD, CONNECTICUT**

In Canada, Plax Canada Limited, Toronto, Montreal

D & C ADVERTISING NOTES

BY TED KLEIN, PUBLIC RELATIONS DIRECTOR*

Psychologists on Drugs

One of the interesting sidelights of the convention of the American Psychological Association held in Washington, D. C. from August 28 to September 3 was the number of papers presented on drugs and drug therapy. Several of the reports covered the effects that tranquilizers have on the personality. Other drugs mentioned included sedatives, reserpines, ephedrines, prostigmins and testosterone propionates. The fact that psychologists are exploring the subjective effects of these drugs on behavior should help many physicians, since few clinical studies document this important aspect of drug effects.

That the field is expanding is indicated by the fact that psychologists are increasingly employed by drug companies, and Ph.D.'s in experimental psychology are finding it easier to get jobs within the industry.

Out of six psychologists awarded the doctorate in psychology from a major Eastern university three years ago, four are now working in the pharmaceutical field.

Group Practice Increasing

According to the University of Chicago's National Opinion Research Center, three out of every four new physicians want to practice in some sort of a group setup. Of today's medical doctors, 56 out of every 100 go it alone. If this survey proves to be an accurate one, then future physicians will be more group-minded than ever before.

Another study, conducted by the American Association of Medical Clinics, publishers of *Group Practice*, supplies additional information on the subject, in the form of an analysis of the prescription writing habits of some 80 doctors in group practice in Chicago, Milwaukee and Portland. It was found that these physicians wrote an average of 1,460.8 prescriptions a day, or 17.6 per man. Of ten specialities covered within the group, dermatologists and ENT men wrote the highest number per day—an average of 30. Next came internists with 25.6, then GP's with 23.5. It is interesting to note that psychiatrists were writing the same number as surgeons—10 per day.

All this emphasis on the methods of group practice and the trend to group practice suggests a question: Will the physicians in group practice eventually hire a pharmacologist to evaluate drugs offered by pharmaceutical manufacturers? And, if so, what will be their criteria in selecting drugs? Manufacturers who can anticipate answers to this question will be well ahead in meeting what may be a new kind of marketing problem.

Most Profitable

Each year *Fortune* magazine reports on the 500 largest U. S. corporations. The drug industry comes through with flying colors in this year's summary. Notable among figures presented in the survey are the "ten most profitable" companies. Smith, Kline & French, ranking in sales as the 325th out the top 500, reported a profit (computed as return on investment capital) of 37.6 per cent. The only corporation in the nation with a higher profit was Botany Mills with a whopping 59.4 per cent. Fourth of the top ten profit-makers in the listing is American Home Products—118th in sales—with a reported 34.3 per cent profit. Schering, which ranked 418th in sales, has a 31.1 per cent return. It doesn't take a financial expert to see that pharmaceutical companies represent a good investment.

The high percentage of profit in combination with the relatively small investment and sales, however, can give ammunition to those critics of the industry who maintain that drugs cost too much and companies make too much from their sale. Here again is the chance, even the obligation, for the industry to keep the public informed on just what is involved in the manufacture of drugs.

Post Office Penalties

As of November 1st, a letter that is sent with insufficient postage will cost the addressee a penalty of five cents. This means that if you don't put enough postage on a piece of first class mail, the person to whom you have sent the letter will pay not only the amount due in postage, but an additional five cents for each letter.

The government is undoubtedly trying to lose no more money than is absolutely necessary in operating the post office, which is understandable. However, the effect that this penalty could have on a physician who has to pay five cents every time someone makes a mistake will be something a drug company won't forget. Direct mail plays an important part in getting information to physicians and a few mistakes in postage could very well cost a company the good will of many customers.

You can write the Postmaster General, or your congressman or local postmaster, if you think this penalty regulation is unfair.

Politz Media Study

One of the major medical magazines has just received the results of a comprehensive study done by Alfred Politz Media Studies. The first of its kind in the pharmaceutical field, it compares with similar studies Politz has done for *Life*, *Look* and *The Saturday Evening Post*. Its results will probably provide a standard for other publishers to meet when giveing information about their readership.

*Paul Klemtner & Company, Inc.

Patent thoughts and trends

BY THOMAS CIFELLI, JR., PATENT ATTORNEY*

U.S. Supreme Court Actions During 1957-1958 Term

During its recent term the U. S. Supreme Court refused to consider practically all the cases relating to patents, trademarks and copyrights presented to it. Of 38 requests made to review lower court decisions, the Supreme Court agreed to consider only three, and with respect to these the court did not see fit to issue a single opinion written by an individual justice, but merely issued short unsigned orders.

A few of the cases refused to review are believed to be of general interest and are noted here, as follows:

U. S. Chemical Corp. v. Plastic Glass Corp., 113 USPQ 303, wherein the Court of Appeals for the Third Circuit held that where patentee used process of patent to create product which was sold on market more than year prior to patent application, such use of process and sales constitute prior use of process within meaning of 35 U.S.C. 102 (b);

Fisch v. Gould, 114 USPQ 92, wherein the Court of Appeals for the Third Circuit rejected the flash of genius test, holding that the last sentence of section 103 of the 1952 Act eliminated the meaning which in some opinions has been ascribed to "flash of genius;"

Shapiro, Bernstein & Co., Inc. v. Goody, 115 USPQ 36, wherein the Court of Appeals for the Second Circuit held that the seller of unauthorized records of copyrighted music, although having no connection with manufacturer, is an infringer and liable for damages; and

Watson v. Bersworth, 116 USPQ 79, wherein the Court of Appeals for the District of Columbia held that mere preponderance of evidence in an action under 35 U.S.C. 145 does not justify the court in reversing the Patent Office's factual finding.

A case of considerable interest in the perfume field will probably be reviewed by the U. S. Supreme Court at its next term, beginning October, 1958. Reference is made to the companion cases involving Guerlain, Inc., Parfumes Corday, Inc., and Lanvin Parfums, Inc. In these cases, it will be recalled, the U. S. District Court for the Southern District of New York held that where a single international enterprise is formed by exclusive American importer and French manufacturer of toilet goods, possessing u n i q u e characteristics, sold under popular trademarks registered by the importer in the United States, the importer may not utilize Section 526 of the Tariff Act to exclude competitive importation of trademark products sold abroad by the manufacturer.

*Richards and Cifelli, Newark, New Jersey

Radioactive Tetracycline Antibiotics

New research tools in the form of radioactive tetracycline antibiotics are provided by U. S. Patent 2,843,526 issued to Junius F. Snell and assigned to Chas. Pfizer. The term "tetracycline" as used here also includes oxytetracycline, chlortetracycline, and the metal and the acid addition salts of these substances, as well as of tetracycline itself.

With the radioactive products, which are said to have exactly the same properties as the nonradioactive substances, execpt for radioactive disintegration rates, studies in the fields of pharmacy and pharmacology are rendered practical and exact, according to the patent. By means of the radioactive antibiotics the site and rate of absorption of the antibiotics can be ascertained and their anatomical distribution pattern determined. The effect of various pharmaceutical carriers on the rate of absorption and the distribution of the antibiotics in the animal body can be determined to assist in developing improved dosage forms. Other questions that may yield to pharmacological and biochemical research utilizing the radioactive antibiotics, according to the inventor, include explaining observed differences between the *in vivo* and *in vitro* activity of the antibiotics to improve the performance of the antibiotics in the animal.

Ordinary known techniques for producing the tetracycline antibiotics, by fermentation under submerged, aerated and agitated conditions with the incorporation of but a few refinements, are employed to produce the radioactive tetracyclines. The radioactive carbon precursor is most advantageously added after 25 to 75 hours of incubation. It is undesirable to add the radioactive precursor at the outset of the fermentation, since substantial radioactivity then appears in the mycelium.

A variety of instruments and methods can be used to assay the papergrams for radioactivity. In the words of the patent: "One useful apparatus that was used was made up of a rotating drum contained within a methane flow counter and shielded from the anode of the counter by a partition with a slit in it. The papergram was placed on the rotating drum and appropriate measuring devices were used to measure the fluctuations in the current resulting from the ionization of the gas in the vicinity of the anode caused by the radioactive emissions emanating from the papergram in front of the slit. With proper calibration of this apparatus, it was possible to determine accurately the R_f values of the radioactive zones and to determine semiquantitatively their C^{14} analyses.

"Assay of the papergrams for zones of biological activity was done by a standard bio-autograph technique employing a *B. subtilis* plate assay. Sterile agar plates were prepared and inoculated with *B. subtilis*. The papergrams were placed on the plates to transfer the antibiotics to the medium, and the plates were incubated. The zones of inhibition then indicated the location of the antibiotics on the papergrams. As indicated previously, a correlation was observed between the zones located by the two techniques. A quantitative b i o - a s s a y of the chromato-

Linalool 'Roche' is
uniform — unvarying in
odor — in constant supply
at a stable price —

Linalool 'Roche' is more stable than natural linalool. For existing compounds, we can assist you in adjusting Linalool 'Roche' to simulate natural linalool. Also available is synthetic Linalyl Acetate 'Roche' with an equally high quality odor. 'Roche' Aromatics are available through principal essential oil distributors. AROMATICS DIVISION, HOFFMANN-LA ROCHE INC, Nutley 10, N.J.

NUtley 2-5000

New York City: OXford 5-1400

NEROLIDOL 'Roche'

Now available at attractive price. Serves the same purpose in compounds as the sesquiterpene alcohols in natural oils. Has excellent blending and cohesive properties. Delicate lily-like odor. Can be used as a substitute for farnesol.

GERANYL ACETONE 'Roche'

Completely new, inexpensive material. Has basic rose type of odor, resembling rhodinol formate or geranyl formate, but with good green note. Aldehyde-like top note. Stable in soap.

AROMATICS DIVISION
HOFFMANN-LA ROCHE INC Nutley 10,N.J. NUtley 2-5000
New York City: OXford 5-1400

graphed material permitted a calculation of the approximate specific activities of various samples of the radioactive tetracycline antibiotics produced by this technique."

The patent points out that it is desirable to blend the radioactive antibiotic with the corresponding nonradioactive material in practice. For chemical degradation studies a 10-fold or 100-fold dilution is useful.

For determination of the C^{14} content of the radioactive tetracycline and its degradation products which were isolated in pure form, the combustion method of Van Slyke *et al., J. Biol. Chem.* 192, 769 (1951) was employed. The radioactive content of the CO_2 produced was measured in a Bernstein-Ballentine tube.

It is noted that while the patent specification frequently refers specifically to the radioactive antibiotics as being a part of the invention, the claims actually allowed are all restricted to the actual process for producing the radioactive tetracyclines.

Rise vs. Rapid Shave

Readers of this journal will certainly recognize the fact that the title of this section deals with the respective trademarks of Carter Products and Colgate, which trademarks are applied to pressurized shaving creams. Furthermore, it is also well known that a tremendous amount of patent litigation has been going on with respect to U. S. Patent No. 2,655,480, issued in 1943 to Spitzer *et al.* Carter Products is the exclusive licensee under that patent which has been sustained against Colgate.

The reason for the present reference to the litigation between Carter and Colgate is to bring the reader up to date on some phases of the litigation thought to be of general interest. Specifically, Carter recently asked the court that originally upheld the validity of the patent to hold Colgate in contempt of the injunction which was issued against Colgate and which enjoined it (1) from making, using or selling, or from actively causing or inducing others to make, use or sell pressurized lather compositions covered by the claims of the Spitzer patent for the remainder of its term; and (2) from making or offering for sale a pressurized lather shaving cream utilizing one of plaintiffs' trade secrets held to have been wrongfully appropriated by Colgate.

Carter claimed that Colgate violated the injunction (1) by continuing to induce the sale by retailers of the adjudicated product after it was served with the writ of injunction, and (2) by manufacturing a new, altered product and advertising and selling it under the same name as the old, adjudicated product.

Colgate, of course, denied Carter's claims in both respects.

What follows is a partial summary of Judge Thomsen's ruling on the questions presented to him.

Inducing sales of adjudicated products. Judge Thomsen noted that Colgate, upon service of the injunction on or about Nov. 20, 1956, promptly ordered its warehouses to cease shipping the adjudicated products still on hand and to hold for destruction Colgate's inventory of such products. However, it appears that there were approximately 1,600,000 cans of the adjudicated products in the hands of Colgate's customers at the time; and the decision states that Colgate took no action to prevent the sale of these cans by its wholesalers and retailers. Nor did it advise them of the injunction. The Judge made other findings which led him to his conclusion that Colgate did violate the injunction with respect to the sale of the aforesaid 1,600,000 cans. Indeed, the Judge was moved to grant Carter treble damages as well as to permit it to recover attorney's fees for prosecuting that portion of the motion dealing with this phase of the matter.

With respect to the continued sale of the altered product under the same name and advertising as the adjudicated product and the right of Carter to recover damages therefor, the Judge specifically pointed out that this question was not before him and that Carter's right to prosecute such claims was not affected by the Judge's ruling.

Manufacturing and selling the altered product—the question of infringement. (1) Equivalents: To understand the question presented to the court it is necessary to keep in mind that even though an alleged infringing composition may not literally infringe the claims of a patent, the court will find infringement if the materials substituted for the claimed materials are known substantial equivalents for the materials stated in the claims.

The patent in suit, it will be recalled, specifically mentions "fluorinated-chlorinated ethanes and methanes." These are the well-known Freon propellants. In its altered cream, Colgate did not use such propellants but did use a mixture of propane and isobutane. Nevertheless, the court ruled that the use of such a mixture was the equivalent of the use of the Freons recited in claims of the patent.

(2) File wrapper estoppel: It was Colgate's position that the substitution by it of the mixture of propane and isobutane could not be held to be the use of an equivalent of the claimed Freons because of so-called file wrapper and judicial estoppels.

File wrapper estoppel bars recourse to the doctrine of equivalents in those cases where the patentee attempts to secure, through equivalents, what has been rejected by the Patent Office. It prevents application of the doctrine of equivalents to recapture coverage which the patentee has surrendered by amendment whether or not the prior art required the amendment. The Judge considered the history of the prosecution and ruled as follows:

"In the instant case the claims were given up to escape rejection upon a reference from the prior art. The saturated aliphatic hydrocarbons in the original claims were subject to the same limitations with respect to molar proportions, etc. as the Freons. The hydrocarbons were given up to escape rejection on Rotheim, which had specifically referred to isobutane. Plaintiffs cannot now recover isobutane and the other saturated aliphatic hydrocarbons which they gave up by amendment.

It is unimportant that several amendments were necessary to narrow the claims sufficiently to induce the examiner to allow them. The critical amendments eliminating the saturated aliphatic hydrocarbons removed one of the examiner's bases for objection. The fact that other amendments were necessary to satify other objections is immaterial, since there is no evidence that the examiner would have permitted the claims to issue with his first objection unsatisfied. The elimination of isobutane and the other saturated aliphatic hydrocarbons was a controlling factor in overcoming the examiner's rejection of the original claims and in procuring the issuance of the patent.

(*Continued on page 386*)

Silicones won't swim away

FORMULATE SUN-TAN LOTIONS, CREAMS with DOW CORNING FLUIDS

Water resistance . . . freedom from greasiness . . . longer lasting protection . . . these are the reasons why Dow Corning Silicones are the important ingredient in sun-tan lotions, hand-creams, pre-shave preparations, hair treatments, and other toilet goods or cosmetics.

Dow Corning silicone fluids improve performance . . . make the product easier to spread . . . make it stay on the skin and protect against water-borne irritants, at work or at play.

Physiologically harmless, Dow Corning silicone fluids are ideal cosmetic ingredients. They're colorless, odorless and inert; won't turn rancid or gummy; are virtually unaffected by heat, cold or water. It's this combination of properties that enables Dow Corning Silicones to make good products better.

For information, data and samples, contact the technical representatives in any of our branch offices, or write direct to Dow Corning Corporation.

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

ATLANTA BOSTON CHICAGO CLEVELAND DALLAS DETROIT LOS ANGELES NEW YORK WASHINGTON, D. C.
CANADA: DOW CORNING SILICONES LTD., TORONTO GREAT BRITAIN: MIDLAND SILICONES LTD., LONDON FRANCE: ST. GOBAIN, PARIS

Pfizer Appointments

William C. Gittinger, M.D., has been named medical director of Pfizer Laboratories, division of Chas. Pfizer & Co., Inc., according to J. J. Van Gasse, M.D., general manager of Pfizer Laboratories. In his new post, Dr. Gittinger will direct medical department activities in the fields of clinical investigation, professional services to physicians and medical aspects of product development and marketing.

WILLIAM C. GITTINGER

Dr. Gittinger joined Pfizer's clinical research department in 1956. He has worked on the development of Pfizer's Cosa-Tetracyn and other glucosamine-potentiated antibiotics and most recently he served as director of clinical investigation for the Laboratories.

The company has also announced the appointment of Gerald D. Laubach as manager of synthetic medicinal products research and Robert Kent as manager of synthetic anti-infective research.

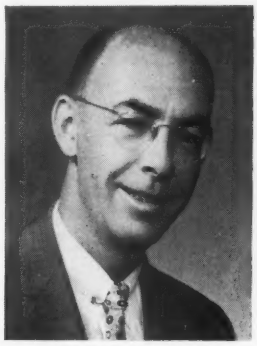
Named a production supervisor in the pharmaceutical production and packaging department at Brooklyn is Paul M. Meer. Formerly a chemist with the Meer Corporation, Mr. Meer has also been an instructor in the Chemistry Department of Temple University. Most recently, Mr. Meer was associated with the training activities of Smith, Kline & French in conjunction with Temple's graduate program.

Joining the company as pharmaceutical chemists in the pharmaceutical research department are: Dr. Herbert A. Platt; Dr. Arthur Victor Puccini; and Dr. Jerome A. Reinstein.

Newly assigned as chemical engineers in the pharmaceutical pilot plant at Brooklyn are: Robert W. Norris and Morton F. Rezak.

Warner-Chilcott Names Director of Advertising

The appointment of Edward W. Whitney as director of advertising and promotion at Warner-Chilcott Laboratories has been announced by Dr. Leonard A. Scheele, president of the ethical drug division of Warner-Lambert Pharmaceutical Company.



EDWARD W. WHITNEY

Mr. Whitney was director of advertising at Pfizer Laboratories for the past ten years, before which he was associated with Sterling Drug, Inc.

Perfumers to Honor Guenther

The American Society Perfumers will honor Dr. Ernest Guenther, vice-president of Fritzsche Brothers, Inc., this October 15 at a meeting at the Advertising Club, New York City. He will be presented with a plaque in recognition of the work he has done in essential oils.

Eli Lilly Honored

The New York Branch of the American Pharmaceutical Association has announced that the 1958 Remington Honor Medal will be presented to Eli Lilly of Indianapolis, at the Remington dinner to be held on December 10, at the Hotel Roosevelt in New York City.

Mr. Lilly is chairman of the board of directors of Eli Lilly & Company.

Bremer Succeeds Wright as Dior's General Manager

Anne Wright, executive vice-president and general manager of Christian Dior Perfumes Corporation, has announced her retirement as of September 15. Paul Bremer has been appointed to succeed her as general manager of the company.

Mr. Bremer was formerly general manager of Nomotta Yarns, Inc.

Mackinnon Celebrates 25th Anniversary with N.Y.Q.

Barclay E. Mackinnon, first vice-president of New York Quinine & Chemical Works, was honored at a surprise dinner party at the Chemists Club in August. Officers of the company and Mr. Mackinnon's close associates attended the party to mark his 25th year with the firm.

BARCLAY E. MACKINNON

New President of National Labs

M. E. Peck has been elected president and director of National Laboratories, Inc., a Toledo, Ohio, subsidiary of Lehn & Fink Products Corporation, according to an announcement by Dr. Edward Plaut, president of Lehn & Fink.

Mr. Peck, formerly executive vice-president of National Laboratories, replaces Lisle C. Van Nest, who is retiring as president after 23 years and who continues as a member of the board of directors of the subsidiary.

President of the Spirella Company, Inc., and of its Canadian counterpart before joining National Laboratories this year, Mr. Peck had formerly been with the Hoover Company of Ohio for 24 years.

Mr. Van Nest founded National Laboratories, a producer of commercial sanitation chemical products, in 1935. Lehn & Fink acquired the company in 1957. Formerly he had headed the Van Nest Supply Company.

Evans Vice-President In Europe

Eric J. Hewitt, vice-president of Evans Research and Development Corporation visited industrial organizations, scientific laboratories and government agencies in Europe during August, according to an announcement by Dr. E. G. McDonough, executive vice-president of the New York City laboratory.

Vitamins in Pharmaceuticals

A REPORT

Use of Biotin in Multivitamin Formulae

Biotin, now firmly established as an important member of the vitamin B complex, belongs in multivitamin formulae and dietary supplements for the reasons given below.

D-biotin is required for the growth of many organisms: animals, plants, bacteria. It appears to be related to the process of cell development. Symptoms of deficiency have been shown to occur in human beings who live on diets high in raw egg white.

Deficiency symptoms appear as severe dermatitis lesions, similar to seborrheic dermatitis and a desquamating disease of infants called Leiner's disease. These symptoms, when due to a deficiency of biotin, disappear after its administration. In animals, dermatitis, loss of hair, cessation of growth of the young and sudden death of the adults may occur.

Nearly 200 papers directly related to biotin research are in the literature. The work of investigation continues.

The evidence now available points to the need for biotin in multivitamin and dietary supplements which, by their very nature, are prescribed for therapeutic and prophylactic effect.

The Place of Biotin in Antibiotic Therapy

Rat feeding experiments using some of the sulfonamides show that the animals develop biotin deficiency. The same result has been found and reported from the use of antibiotics. It has been assumed that the same development might occur in man when this therapy is used. Under the circumstances, biotin should be included in stress formulae and in multivitamin supplements which are prescribed so often during and after the administration of these modern drugs.

Usage in Veterinary Medicine

In dogs and dairy calves it has been found that a deficiency of biotin will cause a paralysis of the hind quarters. This condition was cured by the administration of the vitamin. In chicks and turkey poults a biotin deficiency, represented by a dermatitis of the feet, may be overcome by the use of biotin in the feeding formula. A substantial increase in hatchability was found when hens were fed a ration known to be rich in d-biotin.

This evidence indicates that biotin has a definite place in veterinary medicine and animal nutrition.

Technical Data

Empirical Formula ..... $C_{10}H_{16}O_3N_2S$

Molecular Weight 244.3

Slightly soluble in water and 95% alcohol. Insoluble in ether, acetone and ethyl acetate. Soluble in d-panthenol.

Thermostable in dry crystalline form.

Not sensitive to light.

Not affected by reducing agents that may be present in polyvitamin and other pharmaceutical preparations.

The brilliant Roche synthesis of 1946 makes biotin readily available in pure form at a relatively modest cost.

Roche, a world leader in vitamin research and production, has a wealth of information about biotin. Skilled technical people are ready to help you incorporate biotin Roche in your preparations.

New Edition of Brochure

Send now for your personal copy of the Roche technical brochure about d-biotin. Second edition is now available, complete with survey of recent literature and up-to-date bibliography. Ask your Roche salesman or write the Vitamin Division, without obligation.

"Vitamins in Pharmaceuticals" reports are published from time to time by

VITAMIN DIVISION, **HOFFMANN-LA ROCHE INC.**

BIOTIN

COMES RIGHT FROM ROCHE

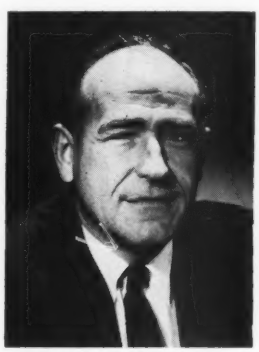
VITAMIN DIVISION **HOFFMANN-LA ROCHE INC.** NUTLEY 10, N. J.

Nutley 2-5000 · New York City: OXford 5-1400

Eli Lilly Appointments

James E. Koffenberger has been named to the new position of administrative assistant to Eugene N. Beesley president of Eli Lilly & Company. Mr. Koffenberger, with the company 19 years, was formerly administrative assistant to the vice-president of industrial relations.

JAMES E. KOFFENBERGER



JOSEPH E. MARMON

Joseph E. Marmon has been appointed executive director of production. He was formerly president of Corn States Laboratories, Inc.

Huisking Acquires Glyco Assets

Charles L. Huisking & Company has acquired all assets of Glyco Products Company and formed a new corporation, Glyco Chemicals Company, as a manufacturing and sales subsidiary. Officers of Glyco Chemical include Charles L. Huisking, chairman of the board; William W. Huisking, president. Harry Bennet and Edward Rosendahl are retiring but will be available for consultation.

Croda Offices Moved

Croda Inc. has announced the lease of new, large offices at 15 E. 26th St., New York 10, N. Y.

Cutter's Purchasing Agent

Thomas J. Teare has been appointed purchasing agent for Cutter Laboratories, succeeding M. W. Giboney who has been named president of Corn King, Inc., a Cutter affiliate. He has been with the firm since 1951 as assistant purchasing agent.

THOMAS J. TEARE

Barry Retires From Mallinckrodt

William D. Barry, vice-president, member of the board of directors and eastern division manager of Mallinckrodt Chemical Works has retired from active service after a career with the firm of over 50 years.

Mr. Barry will continue as a consultant to the company's general management, with an office at 72 Gold Street, New York City. He also continues on the board of directors.

Succeeding Mr. Barry is John C. Perry, who has been with the firm for 32 years. Mr. Perry has the general supervision of eastern division sales and administrative activities connected with the division's customer service. C. H. Robertson is now eastern division sales manager.

Lehn & Fink Promotions

Three promotions in the Toiletries and Proprietaries Division, Lehn & Fink Products Corporation, have been announced by Emanuel Goren, division manager. Ray Mitchell becomes east central regional manager, replacing Charles F. Manz, who has been promoted to sales manager of the company's professional division.

Also promoted to the position of regional sales manager is Donald G. Anderson, who succeeds Randall Mathews in the central region post. Mr. Mathews, now assistant brand manager in the firm's New York office, is succeeded by Neal O. Wylie.

Toohy Heads Squibb

John T. Toohy has been chosen to head the Squibb Division of Olin Mathieson Chemical Corporation. As corporate vice-president of Olin Mathieson and general manager of Squibb, Mr. Toohy succeeds John C. Leppart, who will continue as a consultant.

JOHN T. TOOHY

Mr. Toohy joined Squibb in 1922, was appointed vice-president and general sales manager in 1947. In 1954 he was named general manager of Squibb and vice-president for operations, Olin Mathieson.

Bristol Names Four District Managers

Francis A. McNulty, Rudolph Ernst, Jr., and Stanley J. Blanchfield have been named district managers of Bristol Laboratories. The new appointments were announced by Richard A. Anderson, vice-president and director of marketing.

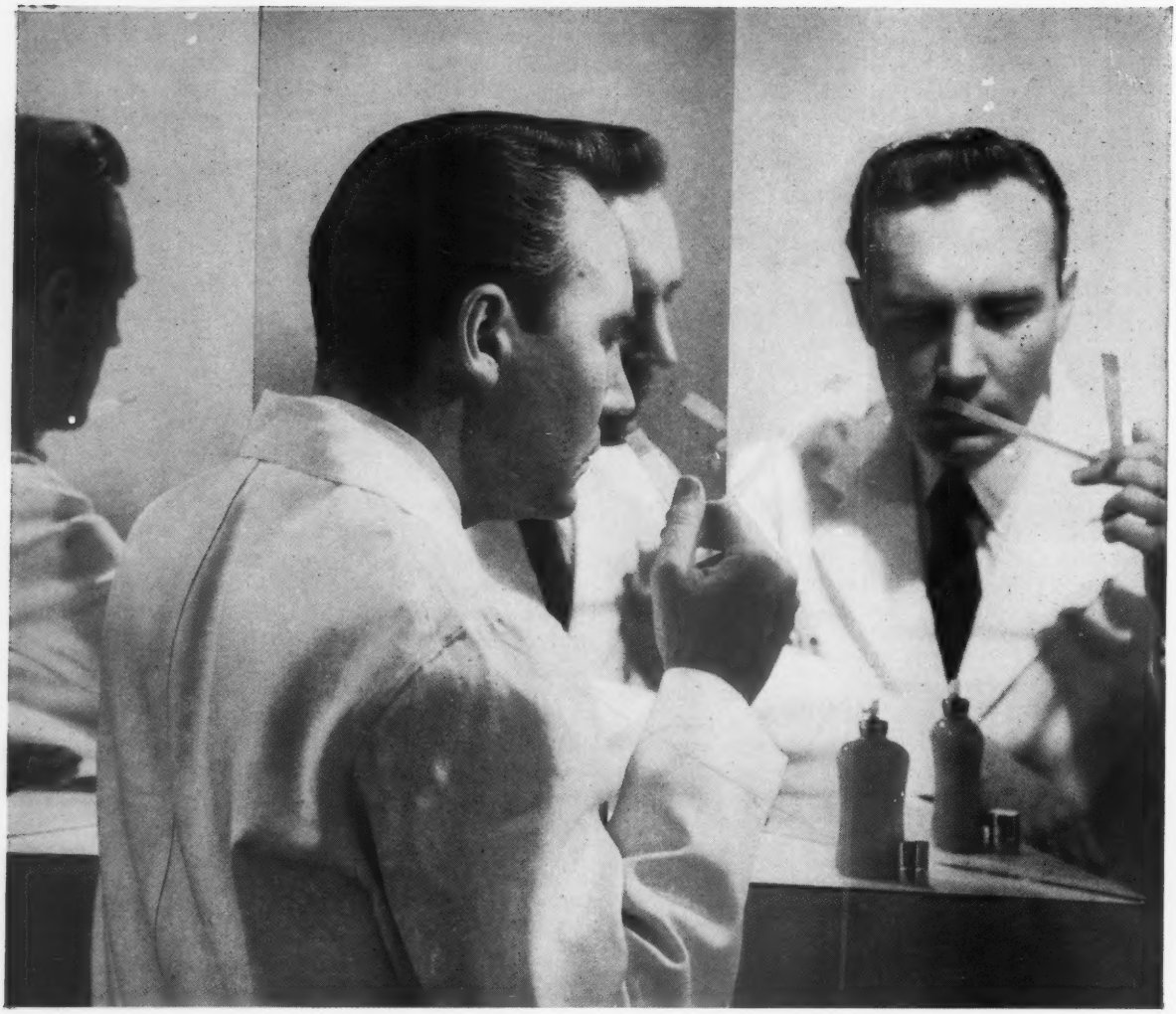
Mr. McNulty, who has been connected with the pharmaceutical business since 1946 and joined the firm in 1955, was appointed manager of Bristol's Los Angeles district to replace William G. Boyce who has been appointed western regional sales manager.

Mr. Ernst, who joined Bristol in 1957, will direct activities in the Seattle, Wash., district.

Mr. Blanchfield, who has been with Bristol since 1954, will head Bristol's Boston district.

The creation of a new western sales region, and the appointment of William G. Boyce as its manager, also has been announced by Richard A. Anderson. Headquarters of the new region, comprising eleven states, is in Los Angeles, Calif.

Mr. Boyce, who has been in the pharmaceutical business since 1948, joined Bristol in December, 1955.



Let's look at your cosmetic aerosol fragrance problem from every angle!

In custom-creating a fragrance for your cosmetic aerosol, Givaudan examines your problem from *every* angle—perfume efficacy and consumer acceptability... types of propellents... pressure... solubility... compatibility... container material... cost and other factors.

Our staff is equipped with the skill, knowledge and specialized facilities to study such problems scientifically. Thus we can supply you with a fragrance that is not only technically correct from every viewpoint but uniquely and specifically *yours.* May we work for you—with you—to give your cosmetic aerosols exactly the right fragrance appeal?

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street, New York 36, N.Y.

Deutsch Joins Carnrick

Marshall E. Deutsch has been appointed director of product development for G. W. Carnrick Company.

MARSHALL E. DEUTSCH

Dr. Deutsch was formerly senior scientist at the Warner-Lambert Research Institute.

Union Carbide Reassigns Yeaw

Union Carbide Chemicals Company, division of Union Carbide Corporation, has announced the transfer of Coleman C. Yeaw to the Newark district. M. Yeaw, who recently completed his training in the general sales office in New York, takes on the duties of a technical representative in his new position.

Two Staff Members Named by Research Institute

Donald E. Cadwallader, Jr., and John M. Duncan have been appointed to the scientific staff of the Sterling-Winthrop Research Institute, according to Dr. M. L. Tainter, director.

Dr. Cadwallader was appointed to the Pharmacy Division as a research associate in a department headed by E. T. Hinkel. Dr. Dunham has been named a research associate in the analytical chemistry department, under the supervision of Morris E. Auerbach.

Hale Promoted at Bristol-Myers

Frank R. Hale has been promoted to the position of assistant vice-president, trade relations, of the Bristol-Myers Products Division, according to an announcement by Edward Gelsthorpe, vice-president and general sales manager.

Mr. Hale joined the Bristol-Myers Products Division in 1950, having been previously associated with the Cunningham Drug Chain.

Couderchet Returns to States

Maurice G. Couderchet, president, Charabot & Co., Inc., recently returned from his annual visit to the company's principals in Grasse, Charabot & Cie.

He reports that about 390,000 kilos of rose flowers were processed in Grasse this year, against 470,000 kilos in 1957 and about 700,000 in a normal year. Nevertheless, the 1958 crop is outstanding. There is a heavy deficit in Morocco, however, due to heavy rains in May.

The cost of jasmine flowers had yet not been settled.

Packaging Institute's 20th Annual Forum in October

The Packaging Institute's twentieth annual national packaging forum will be held this October 13, 14, and 15 in Chicago's Edgewater Beach Hotel.

Wagner Named Assistant General Sales Manager

George N. Wagner has been appointed assistant general sales manager of Roche Laboratories, Division of Hoffmann-La Roche Inc., it has been announced by Dr. V. D. Mattia, Jr., general manager of the division.

Mr. Wagner, who has been a regional sales manager for Roche since 1957, joined the company as a salesman in 1942. In 1952, he was appointed a division sales manager on the West Coast.

Sherman Named To United Nations Committee

Stuart Sherman, vice-president, corporate marketing, and a director of the Colgate-Palmolive Company, has been appointed vice-Chairman of the U. S. Committee for the United Nations, it was announced today by Stanley M. Rumbough Jr., national chairman. Mr. Sherman will use his experience for the more effective dissemination of facts about the United Nations.

Urban Named President of Hazel Bishop

Robert G. Urban has been named president and chief executive officer of Hazel Bishop, Inc. according to Raymond Spector, chairman of the board.

For the past three years, Mr. Urban has been executive vice-president of the family products division of Warner-Lambert Pharmaceutical Company.

Robert Clark Named By Warner-Chilcott

The appointment of Robert B. Clark as senior vice-president of

ROBERT B. CLARK

Warner-Chilcott Laboratories has been announced by Dr. Leonard A. Scheele, president.

Mr. Clark has been corporate secretary and counsel to Warner-Lambert Pharmaceutical Company, of which Warner-Chilcott is the ethical drug division. Prior to joining the company in 1947, he was affiliated with Allied Chemical & Dye Corporation.

In his new post, Mr. Clark's responsibilities will include the directing of Warner-Chilcott's sales, advertising and promotional programs, marketing research activities, professional relations and manufacturing operations.

Miller Heads Chemical Sales For New Allied Division

Leon W. Miller has been named director of chemical sales for Plastics and Coal Chemicals Division, Allied Chemical Corporation, by T. J. Kinsella, president.

Mr. Miller's entire business life of more than 42 years has been spent with the Barrett Division, from which the new Plastics and Coal Chemicals Division was recently formed.

Gertrude Losie to Head Parke-Davis Research Libraries

Gertrude Losie has been appointed head of research libraries for Parke, Davis & Company.

Before joining Parke-Davis as research librarian last October, Miss Losie served as head librarian for Wallerstein Company, Inc. of New York City, for more than twelve years. Earlier, Miss Losie was with Merck & Company, and with the New York State Health Department.

Warner-Lambert Research Institute Appointments

Two new appointments to the staff of the Warner-Lambert Research Institute have been announced by Dr. L. Earle Arnow, president. William M. Govier has been named director of clinical research for the entire Institute, in which position he will be responsible for the clinical investigation required to establish the safety and efficacy of new drugs and other pharmaceutical preparations. Dr. Govier formerly served on the faculty of Wake Forest's School of Medicine. Prior to joining the Warner-Lambert Research Institute he was director of pharmacology for the Schering Corporation.

WILLIAM M. GOVIER

MARSHALL R. WARREN

Marshall R. Warren has been appointed director of pharmacology in the Institute's division of basic sciences. Prior to joining Warner-Lambert, Dr. Warren was director of the division of pharmaceutical research and development at Mead Johnson & Co. He has also served on the faculty at the University of Tennessee's School of Medicine.

Dr. Arnow commented that these two appointments complete the staff of this recently created Institute.

Brown Succeeds Fritz As Managing Director of Wyeth

John H. Brown has been named to succeed B. Scott Fritz as managing director of the Wyeth biological laboratories at Marietta, Pa., it was announced today by John D. Cash, vice-president of the company.

JOHN H. BROWN

Dr. Fritz, who is recuperating from a recent illness, will continue his long association with the Marietta laboratories as resident officer but, through consideration of his health, will be relieved of the burdens of management.

Both executives have spent a major part of their professional careers at Marietta, having been associated with the former Gilliland Laboratories before the property was acquired by American Home Products Corporation in 1943 and made part of Wyeth Laboratories. Dr. Fritz was vice-president and treasurer of the Gilliland firm. He is the author of a number of articles, notably on Bang's disease, in leading professional journals.

Dr. Brown joined Gilliland Laboratories in 1932 as a bacteriologist and served successively as immunologist, assistant director, associate director and, most recently, production manager.

Smart Becomes Market Analyst

As part of an expansion of the marketing research department of Warner-Chilcott Laboratories, the appointment of James L. Smart as market analyst has been announced by the company.

Mr. Smart, who will be working with the department's manager, Eugene R. Smyth, joined Warner-Chilcott recently after obtaining his Master's Degree at the Wharton School of the University of Pennsylvania.

Upjohn Names Schma

John W. Schma, manager, Special Products Division, the Upjohn Company, has been named assistant director of domestic branch sales, according to W. G. Freeman, the firm's director of domestic branch sales.

Mr. Schma will continue to manage special products sales, and he will have in his jurisdiction hospital sales and the supervision of the mid-Atlantic region—Cleveland, Philadelphia and Washington branches.

JOHN W. SCHMA

Mr. Schma began with Upjohn in 1927, serving in various sales capacities. In 1956 he was promoted to regional sales manager Chicago, and in 1957 to manager of the new Special Products Division.

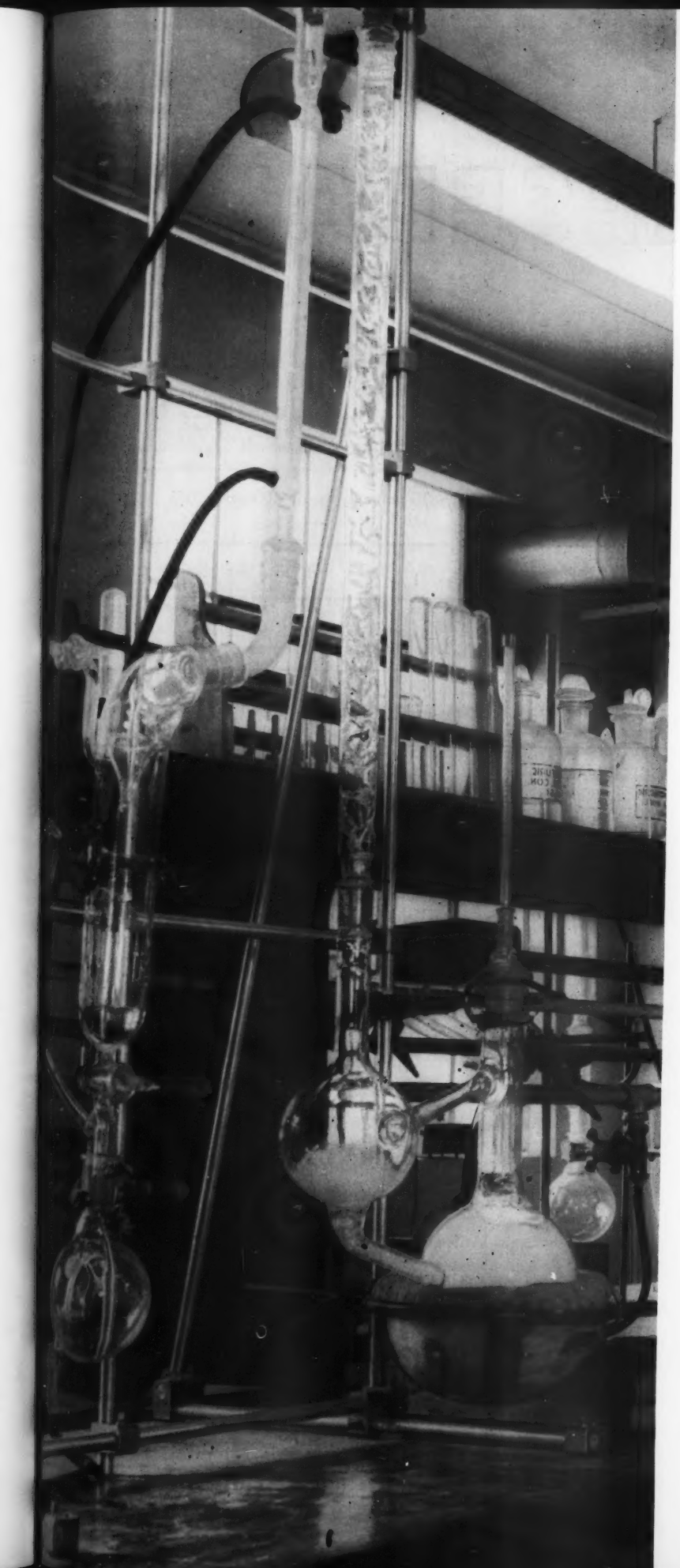
Williams Joins Products Division of Bristol-Myers

Norman Williams has joined the trade relations staff of the Bristol-Myers Products Division and will handle sales planning for drug wholesalers, it was announced today by Edward Gelsthorpe, vice-president and general sales manager.

For the past two and a half years Mr. Williams has been director of public relations for the National Wholesale Druggists Association.

Embassy Expands

A new and enlarged plant with greatly increased capacity for manufacture has been acquired by Embassy Laboratories, private label cosmetic manufacturers, and is now in full operation, according to Franklin H. Cooper, founder of the company. Located in Brooklyn at 2896-98 Fulton Street, the new quarters have facilities for tank storage of materials, manufacturing, warehousing and shipping, as well as completely equipped laboratories for research and development work.



IF

YOU WANT–

the *purest* lanolin

the *lightest* lanolin

the *least odorous* lanolin

the *most uniform* lanolin

the *best* lanolin

YOU WANT–

ROBINSON WAGNER'S

new process

DEODORIZED AAA

anhydrous lanolin USP

ROBINSON WAGNER CO., INC.
628 Waverly Avenue
Mamaroneck, New York

Product bulletins on request.

RESEDALIA

AN ACETAL

PHYSICAL APPEARANCE:	Colorless liquid; APHA 10 Max.
ODOR TYPE:	Floral; resembles Reseda Mignonette.
SOLUBILITY:	10 parts soluble in 100 parts 70% Ethyl Alcohol.
STABILITY:	Very stable in neutral and alkaline media.
REFRACTIVE INDEX:	1.4972 (R.I. n $\frac{20}{D}$)
SPECIFIC GRAVITY:	$\frac{20}{20}$: 1.0020
SUGGESTED USES:	1% to 5% in formulation of floral odors for perfumes, creams, powders and soaps. As addition, ¼% to 1%, to existing compounds to round off and improve odor character.
QUALITY:	Held to rigid specifications by our control laboratories; carefully analyzed by the most modern methods, including infra-red absorption.

Note these additional VERONA specialties:

BERGAMOT SYNTHETIC P-1104 • CYCLAMAL
VERONOL • FLOWER OIL WHITE LILAC

Sole representatives in the United States for: J. & E. SOZIO, GRASSE, FRANCE

RESINOIDES • NATURAL ABSOLUTES • ESSENTIAL OILS

PRODUCTS BUILD SALES FOR Your PRODUCTS

Aromatics Dept.

VERONA CHEMICALS A Division of Verona-Pharma Chemical Corp.

Plant and Main Office: 26 Verona Avenue, Newark, N. J. 1210 Rosedale Avenue, Chicago, Ill.

Toni Promotes Bogaty

Herman Bogaty has been promoted to the position of associate research director for the Toni Company, it was announced today by Raymond E. Reed, Toni vice-president of technical operations.

HERMAN BOGATY

Mr. Bogaty was formerly with the Harris Research Laboratories.

New Officers for Controllers Institute of America

William R. Thomas, vice-president, finance, Cutter Laboratories, Berkeley, Calif., has been elected president of the San Francisco Control of the Controllers Institute of America.

Herbert H. Blevins, assistant controller, Merck & Company, Rahway, N. J., has been similarly honored by the members of the Newark Control.

The new president of the Los Angeles Control is Robert F. Morris, treasurer, Don Baxter, Inc., Glendale, Calif.

Elected directors of the Institute's local Controls in their respective areas are: Harold J. Althouse, treasurer, Peoples Drug Stores, Washington D. C. Control; Herbert H. Bunchman, secretary-treasurer, Plough, Inc., Memphis; James T. Cahill, treasurer, Allied Laboratories, Inc., Kansas City; Robert L. Grant, assistant treasurer, Miles Laboratories, Inc., Elkhart, Ind. (Fort Wayne Control); Gustav Lucie, treasurer, Arner Company, Inc., Buffalo; and Paul J. Viall, treasurer, Chattanooga Medicine Company, Chattanooga. Mr. Cahill and Mr. Viall are immediate past presidents of their local groups.

Established in 1931, the Institute is a non-profit management organization of controllers and finance officers from all lines of business, with a total membership of more than 4,800.

Clairol Selects Gelb

Richard L. Gelb, vice-president and general manager of Clairol Incorporated since 1956, has been elected to the post of executive vice-president. Mr. Gelb has been with Clairol since 1950.

RICHARD L. GELB

Hitchings Chosen By Allied

The appointment of Fred C. Hitchings as sales manager for Genetron refrigerants and aerosol propellants produced by Allied Chemical's General Chemical Division was announced today by I. H. Fooshee, division president.

FRED C. HITCHINGS

Mr. Hitchings succeeds Lee D. Callans, who has been named manager of the division market surveys department. Mr. Hitchings will be responsible for the sale of Genetron propellants to the aerosol industry and Genetron refrigerants to the original equipment market. Harold L. Robbins continues as Genetron refrigerant wholesale sales manager.

A member of the Allied Chemical organization for 24 years, Mr. Hitchings has been manager of New York metropolitan sales for General Chemical's broad line of industrial, laboratory and agricultural chemicals since 1953.

Warner-Lambert Establishes New Merchandising Department

The establishment of a new department to coordinate the merchandising and packaging activities of Warner-Lambert's Family Products Division has been announced by John S. Hewitt, the division's president.

THOMAS J. McEWAN

Thomas J. McEwan has been appointed director of merchandising. Formerly active in a variety of merchandising and packaging functions for several Warner-Lambert units, Mr. McEwan has been assistant director of purchasing and package engineering for the Lambert-Hudnut Manufacturing Laboratories in Lititz, Pennsylvania, since 1956.

Donald Q. O'Brien, who has been named assistant merchandising manager in the new department, was formerly package coordinator at Warner-Lambert.

In connection with these marketing positions, two other appointments have been announced: Sidney Sawyer, formerly with Warner-Lambert at the firm's Yonkers, New York, location, to the position of purchasing agent for all sales promotional materials and displays used by the Family Products Division; and Norman Weinberger, art supervisor for the division. Mr. Weinberger was also formerly of the Yonkers office.

Richardson Named General Sales Manager

Ralph J. Richardson has been named general sales manager of Cutter Laboratories it was announced by H. R. Lange, vice-president for marketing. Mr. Richardson, formerly manager of the Berkeley firm's Eastern Division, succeeds Charles Saugey, who is leaving Cutter for the Medical Supply Co., a distributor of Cutter products in Miami, Fla.

WITH

DISTINGUISH YOUR PRODUCTS

VAN DYK'S SCENTALLURES

SCENTALLURES,

OUR SELECTIVE
PERFUME COMPOUNDS
FOR YOUR
GLASS, AEROSOL
OR POLYETHYLENE
PACKAGED FRAGRANCES
HAIR PREPARATIONS
COSMETICS
MAKEUP
SHAMPOOS
LOTIONS
SUNTAN PREPARATIONS.

SINCE 1904
Van Dyk
BELLEVILLE, N.J.

VAN DYK

AND COMPANY, INC.
BELLEVILLE, NEW JERSEY

NEW YORK · CHICAGO · LOS ANGELES · TORONTO

Dupont aerosol experts discussing new developments and problems with Aerosol Techniques, Inc., chemists at the latter company's new laboratories in Bridgeport, Conn. Seated is Fred Presant, ATI director, research and development. Standing, left to right: front row, H. R. Shepherd, president, ATI; C. Wirth III of Du Pont, F. Read, P. Sanders, D. Kvalnes, A. H. Lawrence, Jr.; back row, C. E. Kimble of DuPont, J. Russo of ATI, F. Bower of DuPont, S. Prussin and F. Gardner of ATI, and L. P. Hall, Jr., of DuPont.

Tombarel President Named by Banque de France

Francois Goby, industrialist in Grasse, president of Tombarel Products Corporation of New York and Mayor of Saint-Vallier-de-Thiey, has been nominated by the governor of the Banque de France as advisor to their Nice branch.

The *Nice Matin* extended felicitations to M. Goby on his appointment, for, the newspaper said, he "will certainly give to this branch the benefit of his great business experience and his knowledge of the economic activity of our region."

Abbott Moves Buffalo Office

Abbott Laboratories has moved into its new Buffalo distribution center and area sales headquarters in Cheektowaga. The new one-story building provides 22,178 square feet of floor space and provides warehouse and packing areas and general offices.

Rexall Drug Buys Chemtrol

Justin W. Dart, president of Rexall Drug Company, has announced his company's purchase of Chemtrol Company of Lynwood, Calif., manufacturers of plastic valves. Martin Usab, designer of valves and a principal of Chemtrol will head the research and product development department of the combined companies, and all employees of Chemtrol will be retained.

Society of Cosmetic Chemists To Hold Fifth Seminar

The fifth annual cosmetic seminar of the Society of Cosmetic Chemists will take place October 8 and 9 at the Barbizon Plaza, 106 Central Park South, New York City. The papers will treat the biological and clinical aspects of the lipids on the human skin, the significance of consumer testing to research, and the theory of solubilization.

The meeting is open to members and guests. Advance registration may be made at the New York Academy of Sciences, 2 East 63rd Street, New York 21.

Hayward Promoted

Robert J. Hayward, Jr., has been promoted to the position of assistant sales manager of commodity oils for Archer-Daniels-Midland Company, according to Paul McClay, assistant vice-president and regional sales manager of the firm. Mr. Hayward joined the company in 1954.

Ritter Appoints Brooks

Leonard S. Brooks has been appointed general sales manager of F. Ritter & Company, with headquarters in Chicago, according to an announcement by Leonard A. Katz and Allan E. Katz, vice-presidents of the firm.

Lehn & Fink Names Mathews

In an expansion of its Proprietaries and Toiletries Division, Lehn & Fink Products Corporation has named Randall Mathews to the new position of assistant brand manager for Lysol disinfectant and Hinds Honey & Almond, according to Emanuel Goren, division manager.

Mr. Mathews was with Pfizer Laboratories before joining Lehn & Fink in 1956.

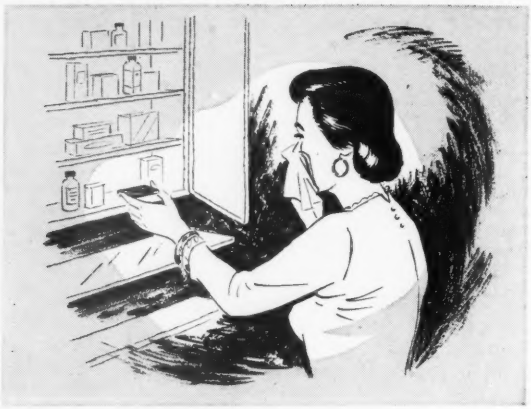
Kassel and Kornblau Named

Two new appointments in the Lady Esther division of Chemway Corporation, Jack Kassel and Seymour Kornblau, have been announced by Vincent P. Brunelli, president of Lady Ester. Mr. Kassel has been appointed treasurer, and Mr. Kornblau vice-president in charge of manufacturing.

At a recent meeting of the CIBS at Toots Shor's, New York City, following the address by George Laurence, New Zealand Trade Commissioner, left to right: J. William Voit, George Luebers & Co., CIBS director; William Jaeger, Park & Tilford, CIBS president; Commissioner Laurence; Robert Ring, Hewitt Soap Co., CIBS membership committee chairman.

A VERSATILE ANTIHISTAMINE PYRILAMINE MALEATE MERCK

LOTIONS, CREAMS, AND OINTMENTS: PYRILAMINE MALEATE MERCK can be a valuable component of any of these formulations. Its outstanding effectiveness as a histamine antagonist can build consumer acceptance for your dermatologic preparations.



COLD TABLETS AND SYRUPS: PYRILAMINE MALEATE MERCK is compatible with a wide variety of analgesics and antipyretics commonly used in cold preparations. Its substantial margin of safety makes pyrilamine especially suitable for over-the-counter products of this type.

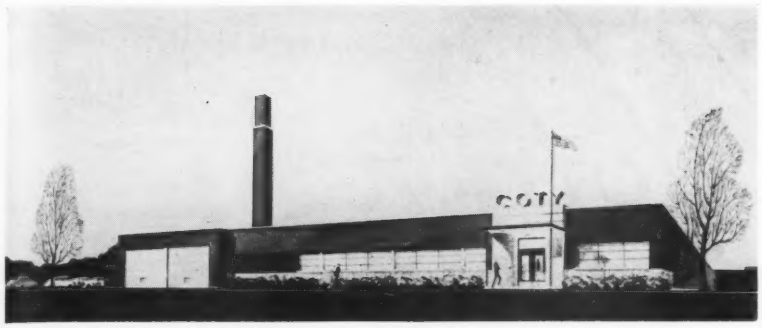
COUGH SYRUPS: The local anesthetic properties of PYRILAMINE MALEATE MERCK add a soothing quality to cough formulations and its antihistaminic action reduces allergy-induced congestion, if present. Because of these advantages pyrilamine can help popularize your product.

ALLERGY PREPARATIONS: Assistance in formulating antiallergy preparations and other products containing PYRILAMINE MALEATE MERCK is available on request. Merck will also supply information on approved dosage levels and other technical and commercial data.

Research and Production for the Nation's Health

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY

© Merck & Co., Inc.



A. H. Robins Company's warehouse and offices in Evanston, Ill., recently purchased from Coty.

A. H. Robins Opens Regional Warehouse

A. H. Robins Company, Richmond, Virginia pharmaceutical manufacturer has acquired the Coty offices and warehouse at 2101 Dempster Street in Evanston, Ill., a regional warehouse servicing its jobbers in the midwest area. The building will also house the offices and facilities of Whittier Laboratories, Inc., Chicago drug manufacturer, which this July became a wholly owned subsidiary of the A. H. Robins Company. Occupancy is scheduled for late September.

The building provides approximately 31,000 square feet of floor space.

The executive offices, main plant and research laboratories of Robins are located in Richmond. The Evanston facilities will constitute the fourth major regional branch for the company; the others are Dallas, Los Angeles and Montreal. President E. Claiborne Robins said the Evanston warehouse will speed up deliveries to wholesales distributors in the midwest who have previously been serviced from Richmond.

Douglas Conkwright

Douglas D. Conkwright, sales promotion manager for the Vick Products Division, Vick Chemical Company of New York, died in New York on August 17 after a short illness. Mr. Conkwright joined Vick in 1917.

Arthur Fox

Arthur G. Fox, retired president of Fox and Clark Company, Inc., of New York, died August 17 at the Hollywood Presbyterian Hospital. Mr. Fox had retired in 1946, after 50 years in the essential oils business, to live in California.

Philadelphia D & O Moves

The Philadelphia sales office of Dodge & Olcott, Inc., has been moved to the 69th Street Theater building, Garrett Road and Westchester Pike, Upper Darby, Penna.

Milton Stern

Milton Stern, assistant sales manager of Magnus, Mabee & Reynard, Inc., died in New York City on August 17. Mr. Stern had been with Magnus since 1924.

Harry Heister

Hary W. Heister, director and dean of salesmen for the firm of George Lueders & Co., died August 17. Mr. Heister had been with the company for 59 years.

Charles Berger

Charles Berger, staff perfumer of Fleuroma, Inc. died August 7 after a short illness. He had been with Fleuroma for four years, having previously served with Felton Chemical Company in the capacity of chief perfumer. Mr. Berger was a member of the American Society of Perfumers.

Union Carbide Insect Repellent Receives Award

Parents' Magazine has awarded its Commendation Seal to the "6-12" insect repellent made by Union Carbide Chemical Company, Division of Union Carbide Corporation, producer and marketer of the product.

Elmer Metzger

Elmer W. Metzger, former branch operations director of Merck Sharp & Dohme, Division of Merck & Co., Inc., died August 5 in Dallas, Texas. Mr. Metzger had retired earlier this year after nearly 48 years of service with the company.

Mr. Metzger, whose entire career with Merck Sharp & Dohme was spent in various phases of branch operations, made many innovations in building design and in operations that have since become standard practice in the company.

Forrest Teel

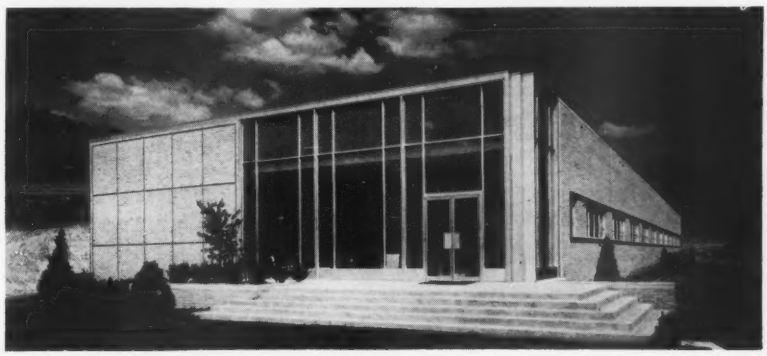
Forrest Teel, an executive vice-president of Eli Lilly & Co., Indianapolis, Ind., was found dead of gunshot wounds in that city July 31.

Mr. Teel, who was fifty-four years old, had been with the company since 1926, and at the time of his death was in charge of its marketing operations.

Wallerstein Co. Building New Office Headquarters

Wallerstein Company, Inc., has awarded the contract for the design and construction of a one-story executive office building to Wington-Abbott Corporation. The new building, located at 150 Granite Avenue, Staten Island, N. Y., will provide 16,000 square feet of space.

The new William S. Merrell Company's Medicinal Chemistry Laboratories in Cincinnati, Ohio, which were dedicated on September 11. During the ceremonies, Dr. Hans Selye, Director of the Institute of Experimental Medicine and Surgery, University of Montreal, spoke on the future of medicinal chemistry. The Merrell Company is a Division of Vick Chemical Company.



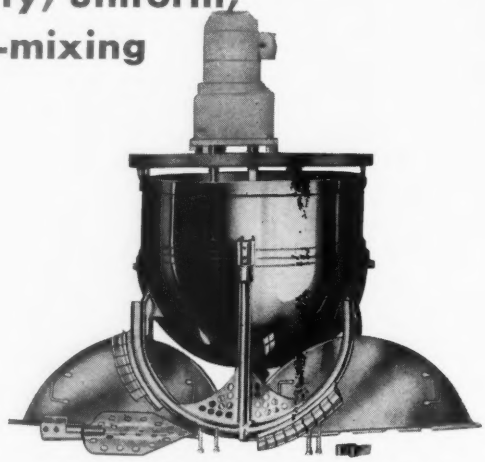
Nothing could be finer

GROEN stainless steel, steam-jacketed, COOKER-MIXERS for high purity, uniform, dependable blending-mixing

Whatever your cooking-mixing-cooling operation, look to GROEN for your stainless steel, steam-jacketed "cooker-mixer" kettles designed to process virtually any viscous product to exacting requirements. They're available in stationary and trunnion designs, for any capacity required.

Pictured here, the Model TA stationary kettle features twin-shaft agitator assuring thorough blending-mixing. Main agitator with finger-like scraper blades rotates slowly and swirls the material into the high-speed, secondary mixer. Design permits the use of various mixers—paddle, beater, bar or turbine types. All agitator parts can be easily removed for fast, effortless cleaning.

GROEN also builds a complete line of stainless steel Mixing, Cooking and Storage Tanks, Revolving/Coating Pans, and Vacuum/Pressure Vessels. For more technical information and engineering counsel, write to Dept. DCI-158.



GROEN MODEL TA stainless steel "cooker-mixer" kettles are ideal in processing creams, batters, adhesives, pigments and other viscous materials. Laboratory and pilot plant models are also available.

Extra heavy-duty, lifetime construction plus sanitary, modern design.

GROEN REVOLVING PANS

Dependable, silent-operating, stainless steel, Revolving/Coating Pans (with or without steam-jacket) are available in a wide range of bowl diameters—pitched for maximum capacity. Motor and drive are completely enclosed.

FREE LITERATURE

Bulletin TAK-2 gives complete description and specifications on GROEN line of stainless steel, stationary and trunnion "cooker-mixer" kettles. Revolving/Coating Pans described in Bulletin VP-1. Literature sent on request.

World's Largest Producers of Stainless Steel, Steam-Jacketed Kettles —Since 1907

GROEN

GROEN MFG. CO.

4535 W. ARMITAGE, CHICAGO 39 • 30 CHURCH ST., NEW YORK 7

Management Forum

BY FRANCIS CHILSON
NDUSTRIAL CONSULTANT

Research Goldfish Bowls

In the drug and allied industries there is an increasing tendency to build glass palaces for research purposes. Wyeth started the trend by building a multi-story "Little Lever building." All glass and glitter. Parke Davis is building a glass show case. And now Abbott is building a similar glass box. It is obvious that in the drug industry, while its research directors may determine how much research space they need, their managements determine what kind of space they will get. And, in this industry where top managements are so often marketing and advertising men, they fall for the mythical advertising value of glossy structures and the glitter of big-name architects.

From an engineering standpoint I deplore the excessive use of glass in research or any other kind of structure for economic reasons, primarily, but also for many other reasons. In the first place, the cost of building glass-walled structures is much greater than masonry structures. The cost of equipping such structures with air conditioning—heating, ventilating and cooling equipment—is a third more than masonry structures, and the cost of operating and maintaining such equipment during the various seasons of the year is infinitely greater in a glass-walled structure than it is in a masonry structure. Because more air is handled air filtration equipment must be much larger. The more building equipment required, the more non-productive space—costly space.

In glass-walled structures the laboratories that are disposed around the perimeter walls are subjected to too much glare during bright daylight and are unendurable when the sun shines directly on the glass. Actinic glass helps but a little in offsetting this condition. Those who have glass-walled buildings have had to cope with the problem by covering the glass walls with paint, draperies or venetian blinds. Chemists who work in glass-walled laboratories suffer from cold in winter, neat in summer and glare all the time.

Glass walls as a means of admitting light are ineffective in large laboratories. The laboratories along the walls get too much light on bright days and the labs thirty feet away from the windows have to use artificial light anyway, even when the sun is shining on the outside glass walls. In any case outside light as lighting is the most inefficient form of lighting. It constantly changes from excessive glare to twilight and, because of this, it is necessary to equip a laboratory immediately next to a glass wall with just as many lighting fixtures as it would need if it had no windows at all. Glass buildings require frequent if not constant cleaning to keep them presentable. The Lever Building in New York keeps a crew at this job all the time. The small windows of masonry buildings also have to be cleaned occasionally but the structure itself, apart from a bit of trim painting now and again, may never need to be cleaned externally.

The fact that glass shatters so easily does not recommend it to me as a building material for chemistry laboratories where minor explosions and fires are frequent.

Now this brings up the essential point: what is most important about a research building—the structure itself or what is in it? There is no evidence to show that a glittery glass box or a masonry Taj Mahal will stimulate the production of new ideas and new research products. After Alexander Fleming had visited a few new American laboratories and contrasted them with his—to us, crummy, old laboratory in which he discovered penicillin—he remarked that if he'd been working in a modern American laboratory with its air conditioning and air filtration he'd never have discovered penicillin, because the penicillin notatum which contaminated his culture plates would have been filtered out of the air! In an article published in this journal by Norman Applezweig on steroid research, the author described a similar incident at Upjohn where an agar plate exposed on a window sill "yielded a specimen of the genus *Rhizo*

LOOK TO U.S. *for Every* LIQUID FILLING NEED!

YOU CAN SPARK your entire packaging operation *with the right filler!* Anything short of that can snarl your packaging pace.

With decades of liquid filling know-how, U.S. can custom-engineer your filler to fit your operation *precisely.*

FOR RECOMMENDATIONS, please specify: *Your product, size and type container and desired filling rate per minute, hour or day.* No obligation will be implied. Address the home office.

MOST AUTOMATIC ONE-OPERATOR MULTIPLE FILLER

MODEL B-49 STRAIGHTLINE VACUUM FILLER for all liquids. Available with or without discharge conveyor. Contact parts of stainless steel, or in plastics on order. Fills automatically while empties are loaded. Easy operating lever activates container feed; otherwise operation is completely automatic. Adjustable for AGST to gallon size finishes. A dependable machine where filling cost is a factor. Efficient. Send for the Model No. B-49 Bulletin.

CONTINUOUS FILLING

MODEL B-2 VACUUM FILLER provides efficient continuous production, filling two containers at a time. Handles a wide variety of liquids and semi-liquids. Has automatic product supply; vacuum is adjustable and flow-regulated for accurate, clean filling. For containers up to 4½" dia. round or rectangular. Efficient. Send for Bulletin B-2.

ALL LIQUIDS, ALL CONTAINERS

THE U.S. SIPHON FILLER is adjustable for all types of containers. Stainless steel filling tubes and acid-resistant glass lined tank. Handles all types liquids, including foamy products that do not permit agitation. Fills without overflow or spillage. Send for the Siphon Bulletin.

U. S. HAND FILLERS are designed for easy, quick filling operation. Send for "Hand Filler Bulletin."

E-Z Two-Tube Air Cleaner

Popular companion to semi-automatic fillers for products that require a clean, dry container. Blows carton lint and dust out of new containers. Handles any size containers. Up to 40 p.m. Send for E-Z Bulletin.

U. S. BOTTLERS MACHINERY CO.

4013 N. ROCKWELL STREET
CHICAGO 18, ILLINOIS

BOSTON • NEW YORK • PHILADELPHIA
DENVER • PORTLAND, ORE. • OGDEN • JACKSON, MISS.
SANTIAGO • SAO PAULO • MONTREAL • TORONTO
SAN FRANCISCO • LOS ANGELES • SEATTLE
KANSAS CITY • TUCSON • ATLANTA • HONOLULU
VANCOUVER • WINNIPEG • TOLEDO (EXPORT)

SPECIALISTS IN LIQUID FILLING AND CONTAINER CLEANING EQUIPMENT

pus which dutifully converted progesterone to II*a* hydroxyprogesterone." And this bit of luck enabled Upjohn to convert hydroxylated progesterone to cortisone on a commercial scale. (The Upjohn research laboratories are housed in the old factory building. It is a good looking modern masonry building.)

The problem of package versus content in research laboratories is analogous to the national school problem. An article in *Readers Digest* some months ago pointed out the folly of building multi-million-dollar glass palaces for schools instead of concentrating on simple structures and improving our teachers and our school curricula.

It seems to me that the ideal approach in developing a research laboratory is to spend as little as possible on the laboratory structure consonant with securing an attractive looking building set in attractive surroundings, and to spend as much as possible on laboratory equipment and facilities within the building and also to make certain that the research men who use the facilities have comfortable, attractive working conditions.

This policy has been adopted by the Pitman-Moore Division of Allied Laboratories in constructing their new research laboratories at their research center outside Indianapolis. The building is, as it should be, a single story structure. It is an attractive windowless building in an attractive location with plenty of room for expansion. The only glass used in the building is in the doors and in the windows of the power plant and the pilot plant, which of course, could not be air conditioned. The interior will be colorful, comfortable and spacious and I predict that when the building is finished Pitman-Moore will have built first-class research laboratory space at a lower cost per square foot than any similar laboratory built within the past fifteen years, and they will have as much or more productive working space per man than any laboratory in the industry. The Pitman Moore laboratory marks an innovation in lab design in the pharmaceutical industry. I repeat to emphasize: all large labs, regardless of how they are constructed, are in a sense windowless because the labs in the interior of such buildings are windowless necessarily. Once a lab is located 20 or 30 feet from an outside window or glass wall it must use artificial light constantly.

I would like to point out that an excessive amount of glass in a building does not enhance its dignity or beauty. One of the most beautiful buildings ever designed by the dean of American architects, Frank Lloyd Wright, is located in San Francisco. It is a jewelry store, as I recall about three storys high. Its facade is a textured brick wall with no glass in it except the glass entrance door and a show window next to it about four feet square. When the architectural magazines published an illustrated article about this building they said, in the usual architectural patois, "Frank Wright had re-discovered the integrity of the brick wall." He had indeed.

In a recent speech at Rutgers University, Dr. Vannevar Bush, famous scientist and board chairman of Merck & Co., had this to say about industrial research: "But we are primarily concerned today with a different type of research, applied research, which seeks new knowledge, usually of a secondary scientific nature, and applies it to produce a new material, or device, or process. It leads directly to engineering where the matter of costs, and of economic considerations generally, enter. It is aimed positively at the attainment of useful results, and it is expected to pay its way, not every quarter of course, but in the long run. Here is a real problem of management, and a real opportunity. This problem consists of three parts, first of having a smoothly operating group with adequate, well-chosen facilities, good internal communication, and satisfactory housekeeping; second a means for determining intelligently the subjects that are to be worked on; and third, an interrelation between groups so that projects which start at one end in the form of an idea, become abandoned if proved abortive, and otherwise emerge from the other end reasonably promptly and in a form that is genuinely valuable. . . . I've also seen laboratories so immersed in gadgetry and chrome plate that the staff spent most of their time fixing it."

That about sums it up. Note that Dr. Bush emphasizes equipment, organization, housekeeping, communications—and deplores excessive chrome plating. So do I—inside and out.

Miscellaneous Equipment Notes

Mixer: Rapids Machinery Co., 865 11th St., Marion, Iowa, have a blender for dry and semi-dry powders, granulations and the like which is built with unique, trowel-like mixing elements that provide intensive mixing in a short time.

Dryer: Paul O. Abbe have a double cone, steam-jacketed vacuum dryer which is available in small sizes and is suitable for drying tablet granulations and similar wet masses.

Conveyor: Carrier Conveyor Corp. 211 N. Jackson St., Louisville 2, Kentucky has a vertical spiral conveyor which takes up but little floor space. It is fed from the bottom and will carry material upward to a higher piece of equipment or to another floor. The same outfit has a similar unit which has jacketed spirals and can be used either for drying or cooling as the material travels upward. Now they have a vertical rectangular tray dryer which is fed from the top, and this can be used also for cooling or both as required. Air passes through the vibratory trays upward. Capacity varies of course with the size of the unit, the heat the product will stand and the length of time required to dry to specified conditions.

Future: At MIT engineers have developed an engine of an entirely new principle. For the first time heat has been converted directly into electricity. It will take heat from any source including the sun and

packaging news

for sales-conscious glass packers

Fuller Pharmaceutical reports . . .

"We use bands as an attractive label . . . sanitary seal"

Packages that are irregular in size and shape often present a problem to label, seal and display effectively. Yet, today's highly competitive marketing conditions demand eye-catching, informative packages that assure customers of protected quality.

Here's how one manufacturer . . . the Fuller Pharmaceutical Company of Minneapolis . . . solved this three-way problem. On its disc-like package for "Tucks" cleansing cloths, Fuller uses Du Pont "Cel-O-Seal" cellulose bands to carry important labeling information and act as a visible seal of protection.

On display, the package is neat, attractive, informative . . . and the specially medicated cloths are always protected! This is another example of the *versatility* of "Cel-O-Seal" bands. Available in a wide range of sizes, designs and color combinations . . . easily applied by hand or machine. If you have a closure or labeling problem, "Cel-O-Seal" bands may be the solution . . . find out, write us today!

DU PONT
CEL-O-SEAL
REG. U. S. PAT. OFF.
CELLULOSE BANDS

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Wildroot uses "Cel-O-Seal" Bands to do 3 jobs

The Wildroot Company creates a favorable impression for its professional-size bottles of hair tonic by presenting a package that: (1) has strong brand identity; (2) conveys a feeling of quality; and (3) gives visible assurance of protection against tampering, substitution.

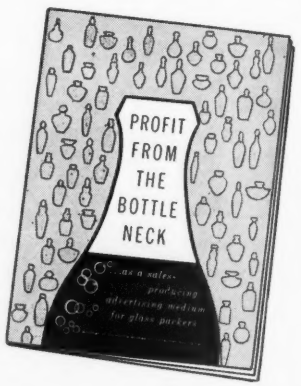
And it's the colorful "Cel-O-Seal" band at the top that helps do this important three-fold job.

An extra advantage: Barbers can cut the seal at the dotted line without damaging the "Wildroot" name display while the package is in use.

Market tests show banded packages outsell unbanded

Can "Cel-O-Seal" bands help give glass packages added sales appeal? Carefully controlled market tests indicate they do.

In these tests, for example, selected glass-packaged products topped off with custom-designed neckband seals outsold unbanded containers of the same products — for *every* product tested. Average sales increase was 17.9%! Such results are a strong indication of the new sales impact, the merchandising opportunities offered by versatile Du Pont "Cel-O-Seal" bands.



For your own free copy of this sales test booklet—*Profit From The Bottle Neck*—write: "Cel-O-Seal" Bands(A), E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

FREE PACKAGING SERVICE: See how "Cel-O-Seal" Bands can help *your* packaging program. Send us a labeled container. Our packaging specialists will band it, make recommendations, return it for your inspection. No charge, no obligation. Write: E. I. du Pont de Nemours & Co. (Inc.), "Cel-O-Seal" Bands (A), Wilmington 98, Del. "Cel-O-Seal" Bands are also sold by Armstrong Cork Co., Lancaster, Pa.

convert it into a stream of electrons. It is called a thermo-electron engine.

The Corporate University

All universities are corporations but not all corporations are universities. But some of them definitely are, if only in a limited sense. Many of the large chemical and pharmaceutical companies process the raw material provided by the colleges and universities into finished products—scientists. Many corporations contribute directly to universities; they have regular schools of their own—seminars—in which beginners and others are instructed; they have part-time plans under which employees with minor degrees work part of the time and spend the rest working at the universities for major degrees; they send executives to advanced schools. They bring special teachers in to conduct courses. In short they strive to amplify the education of some of their employees, particularly their scientific and executive employees.

The educational work done by many corporations has not had much publicity; in fact not enough. If companies did more to formalize their training programs, even to the extent of issuing certificates of proficiency or corporate degrees, it would help to make the public realize how important is the educational work done by many of our corporations. Outside lecturers could be brought in on a regular instead of a haphazard basis as they usually are now.

The management training course given by Procter and Gamble to selected employees carries a lot of weight in industry—a damn sight more as a matter of fact than a good many university business schools. One of my foreign clients, Nicholas Pty. Ltd., of Melbourne, Australia, has worked out a cooperative plan with Melbourne University, under which students working for Nicholas and also at the university are given scholastic credit for their work in the Nicholas research laboratories. The plan is working out exceedingly well.

Foreign Facilities Available

If any of you are contemplating the establishment of manufacturing facilities in Argentina or Mexico, I suggest you get into touch with Dr. Bob Cutter, president of Cutter Laboratories, Berkeley, California. Bob wrote me that they have surplus plant capacity in both countries for the manufacture of both human and veterinary pharmaceuticals and biologicals. I saw the Cutter plant in Mexico City the last time I was down there and it is very nice.

Fear

"We have nothing to fear but fear itself," said FDR a generation ago. I think we have nothing to fear but incompetent politicians. The conditions that brought FDR into office would not have occurred but for the ignorance, incompetence, indifference and impercipience of some of our politicians. Fear is abroad in all the world again because the cloud of the H bomb and its poisonous rain casts a fearsome shadow over all of us. A mistake of judgment, bad timing, or even an intemperate remark at the wrong place might plunge us into a war which would destroy civilization as we know it, even if we were lucky enough to emerge from it victorious. Our destiny is in the hands of our politicians of whom, when we elect them, we require that they have no qualifications of education or experience. We require nothing but that they be citizens of the U.S. and, for many local offices, not even this is required. Our politicians don't even have to be grammar school graduates; they need to know nothing of civics, history, sociology, psychology or economics. By law they need to know nothing. But by law if we need to do a simple bit of wiring, we must have it done by a licensed electrician and he must in turn have enough education to pass an examination. As a professional engineer I must have a license. Your doctor, dentist and even your vet must have licenses. They must by law have licenses to assure you that they have sufficient education and experience to do their jobs. Otherwise you wouldn't hire them. But we hire politicians who have the infinite responsibility of controlling our lives, our fortunes and our destinies and we do not legally require them to have any educational qualifications at all.

Fortunately for us we have by accident or luck a considerable number of fairly well-educated men among our politicians and a few wise ones. I think we have among politicians far more honest men than is generally admitted. But a man can be honest and still be stupid; he can make blunders that may overwhelm us in disaster. In our history we have been remarkably lucky.

As a matter of fact sheer luck has played such an important part in our history that a professor of history from Harvard wrote a series of articles in the *Atlantic Monthly* a year or so ago about the role luck has played in our history.

We cannot expect our luck to continue. In this fearful age our political affairs should be directed by the best available minds—educated minds. Nothing new about this; Plato pointed out the need over twenty centuries ago and he outlined a method by which the brains could be selected, educated and trained in practice. If the need was evident then, what must it be now? We can improve the quality of our political leaders if we take a continuing interest in local, state and national politics and international affairs. We can at least be sure that the politicians we vote for are educated men. But most of us are too busy with our personal businesses to be bothered with politics or politicians and because of this we may some day have no affairs to be bothered about.

Uncle Dave Acts as Referee

My Uncle Dave Whitlock was a character full of humor, charm and wisdom who had the rare faculty

of being able to talk to a small boy without talking down to him. He treated me and other boys as men and we all admired him enormously. Besides he could forge my mother's handwriting so perfectly that I never had to worry about an excuse whenever I played hookey from school to go fishing. My recollection is that fishing was more fun than fractions.

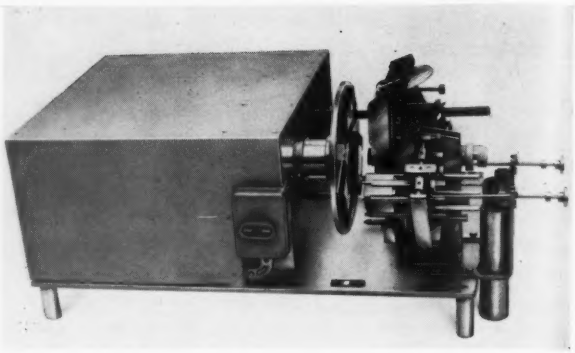
Uncle Dave once settled a violent disagreement between three brothers, whose father, a well-known practical joker, willed them, among other things, 17 horses to be divided as follows: 1/2 to the oldest; 1/3 to the next and 1/9 to the youngest. To divide a horse in half is something of a problem unless you like horse meat. And half of seventeen meant just that. So after wrangling over the division of animals without getting anywhere, the brothers agreed to ask Uncle Dave to settle the issue. He rode over to their farm and after listening to the argument Uncle Dave said, "Don't appear to be any way outen this 'less I slice one of them horses in half and one of you takes the ass end and other the head end." The oldest brother said, "That's the trouble. I don't want no half a horse."

Uncle Dave knew a lot about horses so he said, "Lemme see them horses." After inspecting them he said, "You lunkheads. Your Pa was just havin' fun with you. One of them mares is carryin' a colt so you aint got seventeen horses; you got eighteen. The mare counts for two."

The brothers wouldn't accept that because, by dad, a colt was only half a horse anyway. Uncle Dave scratched his head and looked thoughtful for a minute. Then he said with a crafty smile, "All right. Tell you what I'll do for the purpose of this divid'n' up. I'll give you my horse, providin' after them horses are divided up accordin' to your Pa's will, I git what's left over and the colt to boot. You agree?" The farm lads couldn't see anything wrong with that deal so they agreed.

"Now you got eighteen horses," Uncle Dave said. "Half eighteen is nine, so Tom, you git nine horses. One third of eighteen is six, so you Bill get six horses. One ninth of eighteen is two, so you Zeke, git two. Nine, six and two is seventeen; that leaves one horse left over. So I'll take my horse back and when the colt is big enough you kin bring him over. Now everything is split up fair and square, I'll git along home." He rode away on his own horse leaving the brothers completely puzzled as to how he had divided up the odd horse.

Later when he related the incident to me, Uncle Dave said, "By jiggers, Frank, Old man Morton was allus teasin' them boys when he was alive an' he carried on after he died. They aint near as foxy as he was. I just happened to remember readin' in Dr. King's Almanac a good while ago about an Arab feller dividin' up camels the same way. I bet old Morton read the same thing an' he figgered to tease them boys some more after he was gone."



Automatic Label Overprinting Machine

Griffin-Rutgers, Inc., has introduced the Manning Model 55R automatic overprinting machine for labels. It is a bench type, semi-portable automatic printing press using standard printers' type, designed primarily for the overprinting of labels where several lines of type are required, and can be used for printing approximately 75 per cent of the label area.

The machine incorporates a unique revolving and reciprocating turret carrying three platen faces, which collect the labels from a supply stack by means of vacuum feed, print and, finally, restack the labels, at speeds variable from 4,000 to 7,000 per hour. It may be readily adjusted to take labels from ¾" x 1¼" to 2½" x 4½". The label holders receive about 1,000 labels at one loading.

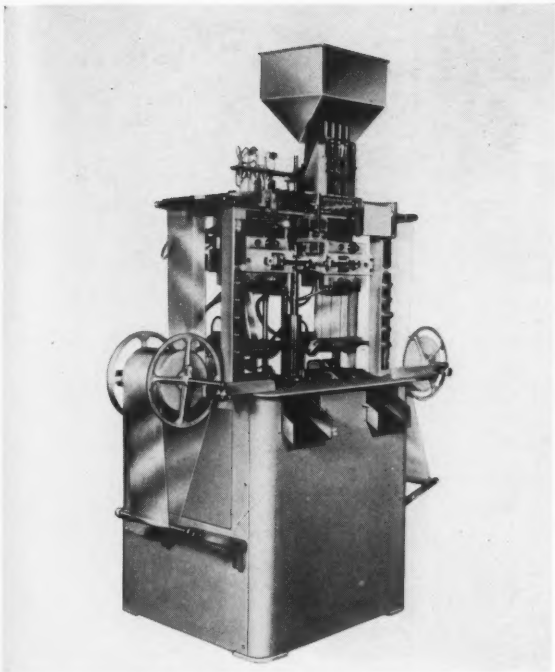
Driven by a ¼ h.p. motor through a reduction gear and cone pulleys, it gives a range of three alternative speeds, 75, 100 and 120 prints per minute.

Brown Co. Multiple Packeter Handles Powders and Liquids

The Brown Filling Machine Company of Fitch burg, Mass. has introduced the Multiple Packeter Model II to handle a complete range of powders and liquids. The model can produce up to eight packets per cycle and up to 300 packets per minute, and is interchangeable for all powder, all liquid, or simultaneous liquid and powder operation. Packet sizes from one to eight inches square sealed on all sides can be produced from continuous rolls of films, foils, papers, laminates and other heat-sealing materials. Electric eyes register printing on both sides of each packet and can be delivered in perforated strips, or joined, or individually.

Powder filling is by highly accurate volumetric or auger feeders which handle all free-flowing, granular and hygroscopic powders. Two different powders can be inserted by means of divided hoppers for mixed filling. Special design of the filling units prevents friction between powders and moving parts, thereby eliminating build-up.

Liquid filling is by moyno or piston pumps with a patented "reverse vacuum" cycle that gives sharp product cut-off and eliminates stringers and leakers that cause faulty seals. All free-flowing, viscous and



semi-viscous liquids can be filled.

The tandem design of the machine permits extremely high production rates with maximum versatility. Sanitary models are standardly available for use in food packeting.

Continental Can's Jak-Et-Pak "50"

The Boxboard & Folding Carton Division of Continental Can Company has introduced a multiple packaging machine that enables a manufacturer to produce distributor and consumer packs of a wide assortment of sizes and styles of containers with a single piece of equipment. The Jak-Et-Pak "50" solves the problem of distributing merchandise to the consumer with a minimum of intermediate handling, which frequently means soilage, ripped labels and unsightly price marking.

The system offers wrap-around multi-pack construction completely mechanized in the manufacturing plant, saving labor both in the plant and for distributors. The machine can be adjusted readily from one size and style to another—from cans to glass to aerosols to squeeze bottles, in a wide variety of sizes and styles. It affords a carton with cut-outs for quick price marking. A compact machine, it handles up to 50 multi-packs a minute.

Changing from single- to double-line packaging takes less than an hour and requires very simple tools. The many refinements ensure continuous performance, and the Duo-Lok mechanism, which has no moving parts, produces an easily opened carton.

Versatile Automatic Closure Press

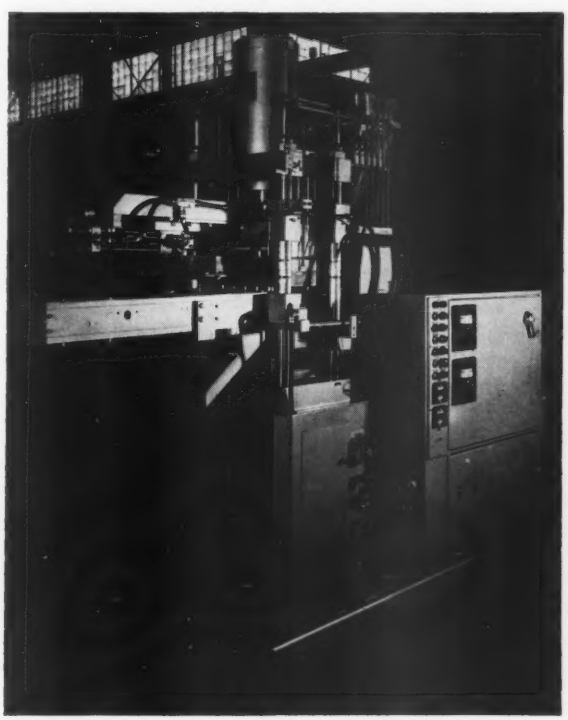
A new automatic closure molding press of 50-ton capacity and equipped with an automatic unscrewing device that permits the molding of decorative reverse-taper closures as well as straight-wall designs, has been developed by F. J. Stokes Corporation of Philadelphia.

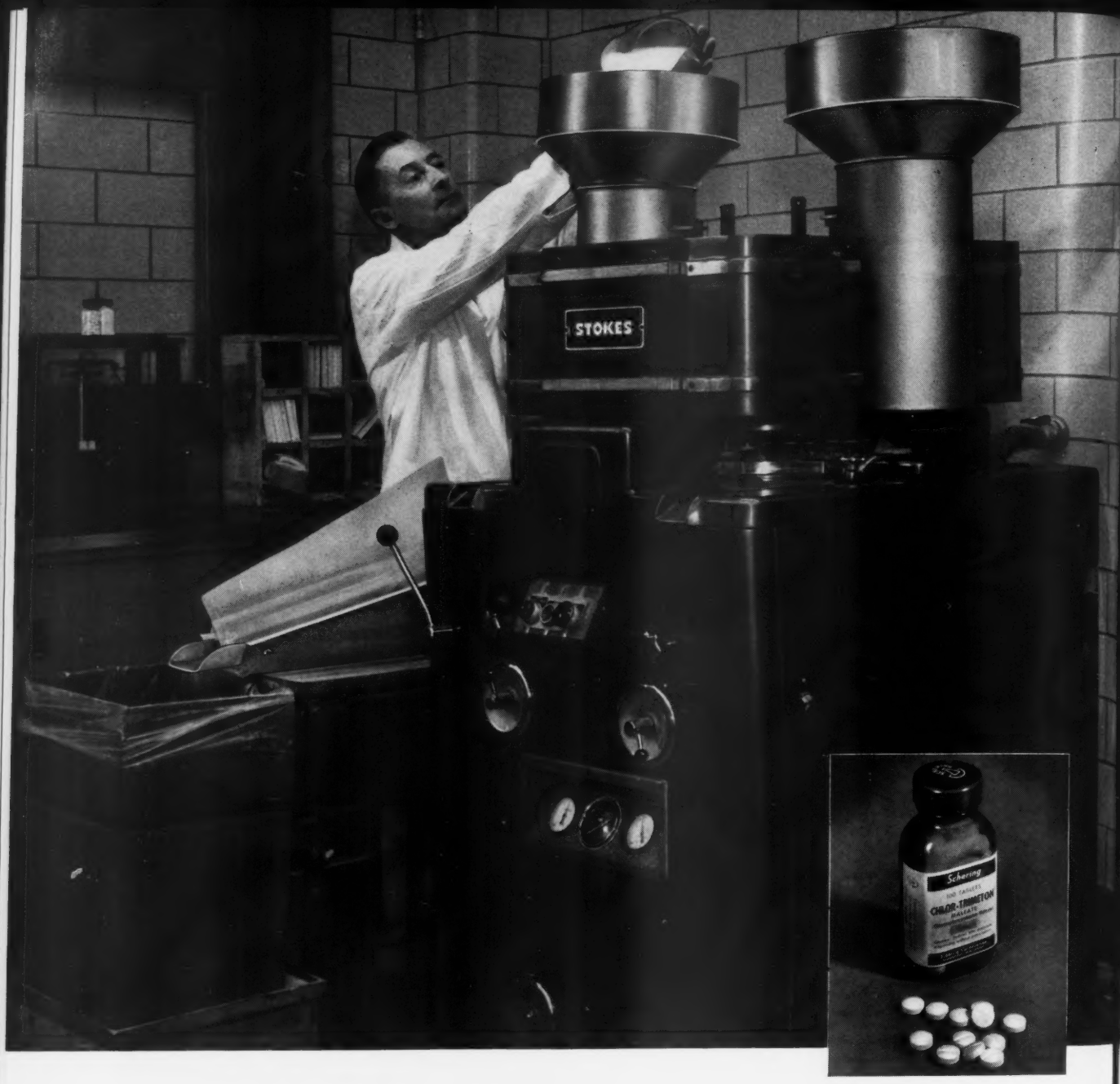
This Model 742 supersedes Stokes' earlier Model 252, but all molds designed for the earlier press can be used without modification on the new press.

Model 742 can mold caps of any size, shape or form, with internal or external threads, in large quantities at extremely low operating costs. Molds with as many as 90 cavities can be easily accommodated, and fast opening, loading, closing and ejection mean high production rates. Total dry cycle time using an eight-inch stroke is 13 seconds, exclusive of curing time.

Like the earlier design, Model 742 is fitted with a rack-type unscrewing device attached to the moving platen on the front of the press and actuated by a hydraulic cylinder. Unscrewing of the thread-forming force plugs from inside the caps is synchronized with the opening of the press, so that the plugs are withdrawn as the press opens, without stripping the threads. The caps are then removed from the force plugs by wipers mounted on the advancing feed, fall onto the comb, and are delivered down the ejection chute.

The press can easily be converted to a conventional automatic compression molding press and will accommodate all existing Model 741 molds without modification. Maximum press stroke is 10 inches. Maximum daylight with the press open is 26 inches, and maximum mold area is 18 x 13 inches. Dry cycle time when used as a compression molding press is eight seconds, based on an eight-inch stroke.





OTHER STOKES EQUIPMENT AT WORK FOR SCHERING . . .

Schering uses a Stokes 566 Multi-layer Tabletting Machine for perfection in multi-layer tablets. Stokes exclusive layer pre-compression permits periodic weight checks—gives clean, sharp separations.

Part of a bank of Stokes Polishing and Coating Pans at Schering. Here, standard Stokes machines have been neatly built into a custom installation behind gleaming stainless steel panels fitted with glass doors.

Operator Kenneth W. Shaw fills the hopper of one of the Stokes high speed Model 540's at Schering. This 41 station machine produces many Schering products, such as Chlor-Trimeton-Maleate, at rates in the order of 3000 tablets per minute.

Accuracy is important and is checked often at Schering. The centralized control area provides constant visual indication of speed and pressure at the punches. Single hydraulic release control permits absolute tablet uniformity from both compression stations of the double sided Model 540.

Dependable high-speed production for Schering...with Stokes pharmaceutical equipment

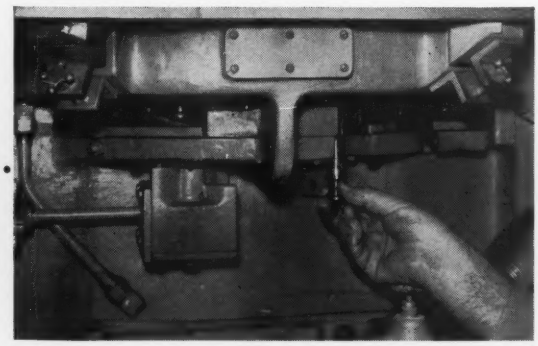
Schering Corporation, Union, New Jersey, demands maximum reliability, efficiency and speed in producing their broad line of steroid hormones and other pharmaceutical products—both ethical and over-the-counter.

Schering's tabletting operation depends on Stokes equipment. Most recently installed are two Model 540 Rotary Tabletting Machines that are in constant operation 16 hours a day, 5 and 6 days a week, manufacturing a variety of drug products. Chlor-Trimeton-Maleate anti-histamine and anti-allergic formula, for example, is produced at speeds up to 3000 per minute. These tablets are 200 mg., imprinted and scored. The high speed and dependability of this operation keeps tabletting costs at their lowest possible level.

Schering takes advantage of the complete line of Stokes pharmaceutical equipment. In addition to operating many Stokes tabletting machines—including conventional and multi-layer—Schering processes their products in Stokes mixers, oscillating granulators, coating pans and polishing heads. And, of course, Schering uses long lived Stokes punches and dies in their tabletting machines.

Find out how this advanced design pharmaceutical equipment can save on your own production. Write to Stokes for complete information, or call your nearest Stokes office.

Pharmaceutical Equipment Division
F. J. STOKES CORPORATION
5500 Tabor Road, Philadelphia 20, Pa.



Maintenance problems are small at Schering. Here, the photographer caught the operator changing punches—snapped this picture because it illustrates the ease with which such service is accomplished on the Model 540.

STOKES

Perfumer's Shelf

Clary Sage Oil

An essential oil with a pleasant odor, often used as an ingredient in various perfumes and flavors, is obtained from the flowers of the Clary sage (Labiatae) by steam distillation. This oil has good fixative properties, for after its more volatile components evaporate it yields a considerable resinous residue which serves as a fixative.

The main components of clary sage oil are linalyl acetate and linalool. Other substances found in a free state or as acetates include nerolidol, β-ocimene, myrcene, geraniol and nerol. In the literature, however, there is no information about carbonyl compounds. Preliminary tests show that Bulgarian clary sage oil contains over 1.5 per cent of carbonyl compounds, determined by the hydroxylamine method and calculated for a compound with a molecular weight of 154. The purpose of the present work by I. Panayotov (*P.E.O.R.* 49: 233, 1958) is to identify these compounds.

The classical methods of separation and identification present considerable difficulties, as carbonyl compounds are found only in small quantities in Paper partition chromatography proved to be a more suitable method.

The carbonyl compounds were chromatographed as 2,4-dinitrophenylhydrazones. These were not obtained directly from the oil but after the carbonyl compounds were isolated as bisulfite derivatives. This procedure permits the preparation of dinitrophenylhydrazone solutions of the desired concentration.

Results on carbonyl compounds in clary sage oil were confirmed by simultaneously chromatographing pure reference substances on the tested solution; on one and the same point of the chromatographed paper a solution of the carbonyl compounds in the oil was applied, followed by solutions of dinitrophenylhydrazones of capricaldehyde, carvone, valeraldehyde, butyraldehyde, propionaldehyde, acetaldehyde and furfural. The chromatogram obtained did not differ from that of the tested solution.

Rose Oil Aldehydes

So far only three carbonyl compounds—citral, nonylaldehyde and carvone—have been identified in rose oil. There may be other carbonyl compounds as well, but probably in such small quantities that they have not yet been found, for a special method is needed for the separation and identification of such small quantities. Paper partition chromatography seemed to be the method most likely to yield good results.

Several methods for chromatographing aldehydes and ketones on paper are described in the literature. Experiments in chromatographing the carbonyl compounds of rose oil in a free state yielded no satisfactory results.

The rose oil aldehydes can be directly transformed into, 2,4-dinitrophenylhydrazones according to I. Panagotov and D. Ivanov (*P.E.O.R.* 49: 231, 1958). The dinitrophenylhydrazone mixture thus obtained contains all other rose oil components, esters, alcohols, hydrocarbons, etc., as well.

After applying a certain quantity of the 2,4-dinitrophenylhydrazone solution of rose oil on N,N-dimethylformamide-impregnated paper and subjecting it to descending chromatography, the mixture splits up into 8 spots.

The data obtained from chromatographing the mixture of rose oil aldehydes by using various mobile and stationary phases are such that eight aldehydes may be taken as established in rose oil: acetaldehyde, propionaldehyde valeraldehyde, nonylaldehyde, citral, cinnamaldehyde, salicylaldehyde and phenylacetaldehyde.

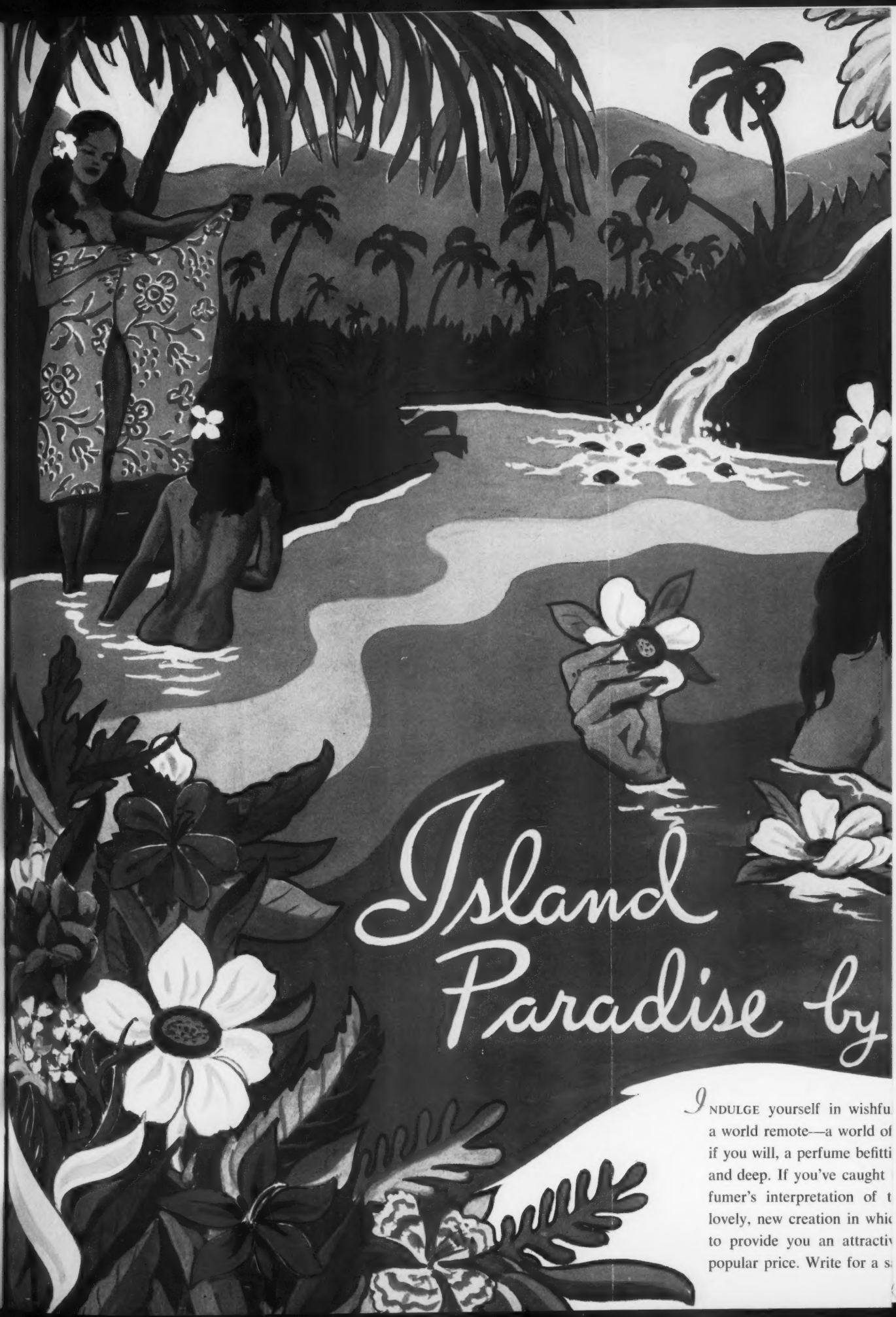
Mouth Wash Flavors

Among the essential oils and synthetic aromatics which have proven useful in the past for mouth wash flavoring are:

Thymol	Oleoresin ginger
Chlorothymol	Clove oil
Thyme oil	Eugenol
Cassia oil	Pimenta oil
Cinnamic aldehyde F.F.C.	Ionones
Cinnamon oil	Eucalyptus oil
Anise oil	Methyl salicylate
Anethole	Betula oil
Peppermint oil	Orris oil
Spearmint oil	Menthol
Oleoresin capsicum	Carvone
Eucalyptol	Pure racemic menthone

Practically all of the above with a few exceptions, exert varying bactericidal or bacteriostatic action. A simplified theory to explain the antibacterial properties is that many essential oils contain terpenes which are oxidized to form peroxides. The conclusion that oils which contain terpenes possess higher bactericidal properties than oils without them is not borne out by the facts. Generally, it may be stated that oils high in aromatic alcohols or aldehydes tend to be bactericidal, while those with acid or esters do not, following more recent evidence.

A good deal of attention must be given to the proper solubilization of flavors since clarity under a variety of temperature conditions is often an



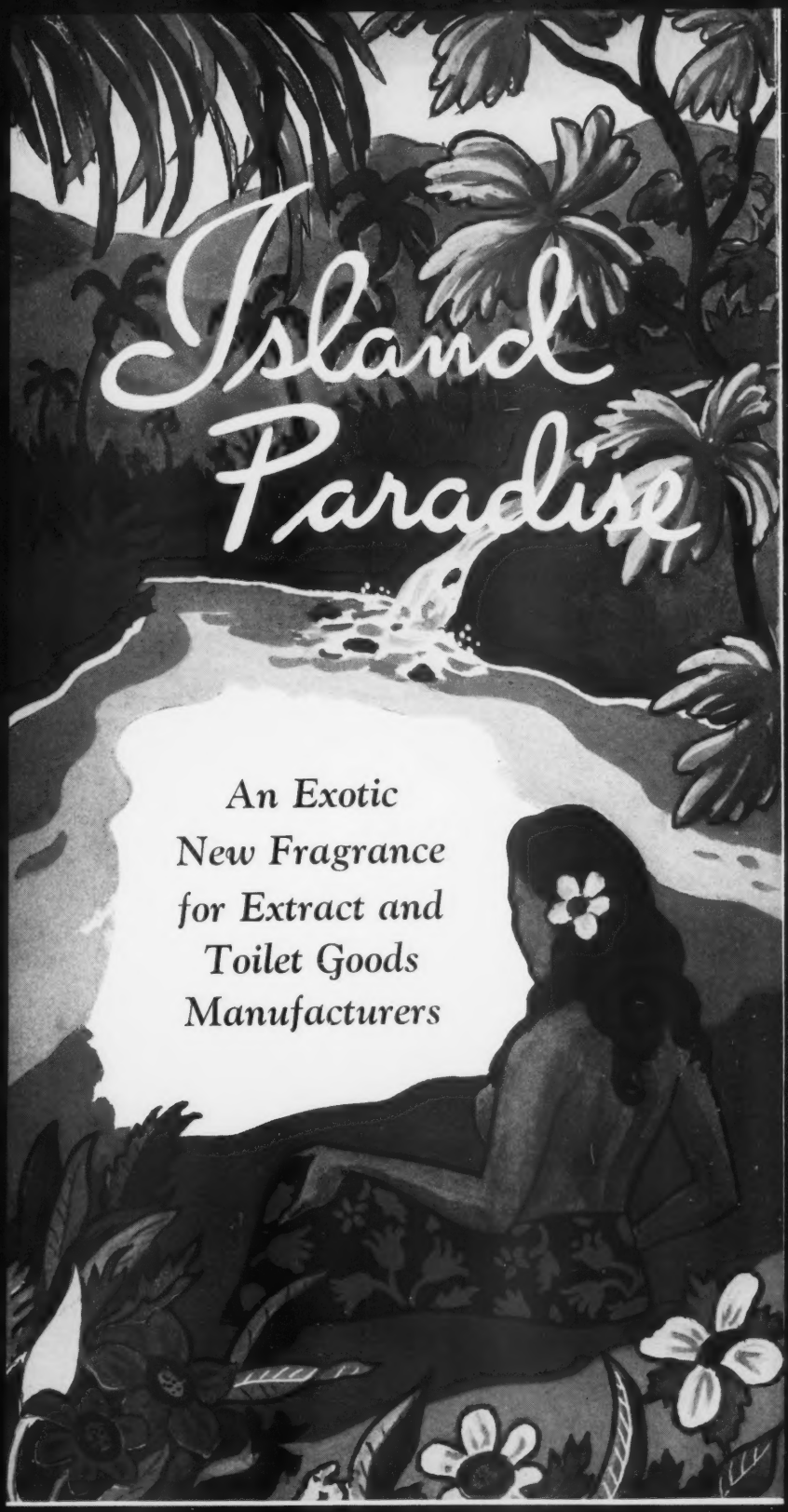
INDULGE yourself in wishfu
a world remote—a world of
if you will, a perfume befitti
and deep. If you've caught
fumer's interpretation of t
lovely, new creation in whic
to provide you an attracti
popular price. Write for a s

ıd

ıdise by Fritzsch

INDULGE yourself in wishful thinking—let your mind soar away from t
a world remote—a world of unspoiled beauty . . . serene . . . secluded . .
if you will, a perfume befitting such a mood—one softly scented and provo
and deep. If you've caught the mood and like it, then let us submit for y
fumer's interpretation of this same imaginary theme. Let us show yo
lovely, new creation in which rare floral scents with touches of spice, have
to provide you an attractively different extract and toiletry fragrance—
popular price. Write for a sample of ISLAND PARADISE . . . today!

rom tension-torn Today into
ed . . . relaxed. Now imagine,
provocative . . . tender, warm
for your evaluation our per-
ow you ISLAND PARADISE—a
e, have been skillfully blended
nce—a quality perfume at a



FRITZSCHE
BROTHERS, INC.

76 NINTH AVENUE, NEW YORK 11, N.Y.

BRANCH OFFICES AND *STOCKS: ATLANTA, GA., BOSTON, MASS., *CHICAGO, ILL., CINCINNATI, OHIO, GREENSBORO, N. C., *LOS ANGELES, CAL., PHILADELPHIA, PA., SAN FRANCISCO, CAL., ST. LOUIS, MO., MONTREAL AND *TORONTO, CANADA; *MEXICO, D. F., AND *BUENOS AIRES, ARGENTINA. FACTORIES: CLIFTON, N. J., AND BUENOS AIRES, ARGENTINA.

EST. 1871

BACKGROUND FOR SUCCESS . . .

Into every flavoring specialty produced by our firm for the ethical drug manufacturer goes a happy blending of *both* the art and the science of flavor making. Each is dependent upon the other for achieving the balance, stability and compatibility so essential to the correctly flavored medicinal product. Focus this against FRITZSCHE's background—*eighty-seven continuous years of flavor specialization*—and you can readily see why so many of today's most successful medicinal flavorings had their origin in the flavor research laboratories of our firm.

FRITZSCHE BROTHERS, INC.

A FIRST NAME IN FLAVORS SINCE 1871

76 NINTH AVENUE, NEW YORK 11, N.Y.

important prerequisite in developing a commercially acceptable product. Solubilities of essential oils are usually reported in the literature on the basis of 90-95 per cent alcohol; the alcohol content of mouthwashes ranges from 10-30 per cent. The number of parts by volume of the solvent required to dissolve one part by weight of the following basic flavomatics is illustrative of the problems involved.

Flavomatic	Water	Alcohol		
		10%	20%	30%
Menthol	2,400	2,300	1,600	700
Eucalyptol	350	200	180	150
Thymol	1,400	1,100	500	300

Combinations of essential oils and synthetic aromatics prove more or less soluble than individual components and this must be carefully evaluated. An advantage is that most of these flavorants are used in relatively small quantities and fortunately solubility difficulties may be resolved either by increasing the alcohol content or by employing surfactants. The use of emulsifying agents in low alcohol or straight aqueous preparations may in some instances produce stronger flavor effects. This may be selective in action so that certain background notes become predominant after aging. Reformulation usually adjusts for this condition. Surfactants which are suitable for use in oral preparations may occasionally contribute an unpleasant taste of their own despite the good masking properties of many of the flavomatics used in these formulations. Surfactant off-flavors may be lessened by use of high purity compounds. Most hydroalcoholic mouthwashes are dissolved in several volumes of water before use. Dilution from a clear concentrate may lower the solubility of some of the flavoring components markedly, altering the over-all flavor effect. This alone is good justification for the use of surfactants.

—Givaudan Flavorist

Hyacinth

The scent of the Hyacinth, as it comes directly from the flower, differs considerably according to the particular variety from which it is being exhaled; but in any case, if smelt too closely, the odor will be found rather green and earthy. These latter characteristics are especially applicable to the white varieties. The red varieties and certain of the pinks are particularly rich in a Clove element; in fact, they are probably the most sweetly scented of all the Hyacinths.

Certain of the yellow colored varieties are also very fragrant, and so are the blues, but to a lesser extent, although, strangely enough, Menelik, which is so dark that some growers list it as black, has an extremely interesting scent, suggesting the presence of Amyl-Cinnamic Aldehyde, together with others of the aliphatic series, which are finding considerable favor in many modern compositions. A particularly lovely variety of a pale purple color called "Remembrance," has, together with its usual hyacinth odor, the suggestion of an amber, or incense note, which might be very well communicated to a fashionable composition by the judicious admixture of Olibanum, Benzoin and Tolu.

Hyacinth flowers commence to emit their fine odor as soon as the first lower buds burst into flower. The scent is actually at its best just after the opening of the topmost remaining buds, and will stay full and strong for about five days, depending on atmospheric conditions, after which a suspicion or hint of decay gradually makes its presence felt. The first sign of decomposition is marked by a distinct change in the general bouquet. The definitely established presence of this particular odor might lead to the discovery of the all-important chemicals which contribute so largely to the Hyacinth notes. This latter is by no means entirely due to Phenylacetaldehyde.

It is perhaps only fair to mention that Jacinthe as a *parfum de luxe* does not always find favor. This somewhat strange circumstance can only be deduced from the fact that the hyacinth scent was one of the first ever synthesized and, for this reason, it is probable that many people may have grown tired of it, especially in view of it being sweet, fruity and rather cloying. At the same time, it is conceivable that, if composed skillfully, incorporating one or two of the newer chemicals, the hyacinth scent might enjoy an altogether greater vogue, and still play a role in the series of flower perfumes.

A product called Jacinthine supplies in some degree the peculiar green, stalk-like odor of hyacinths, with some added floweriness as well. Jacinthe de Haarlem is, I think the finest hyacinth compound I have ever smelt—although a cheaper product called by them simply "Dutch Hyacinth" is equally considered by many to be the best. As a blend of lilac, lily and hyacinth, it would be difficult to beat the outstanding creation of Coty called "Paris." How quickly we get used to and how quickly we forget these masterpieces.

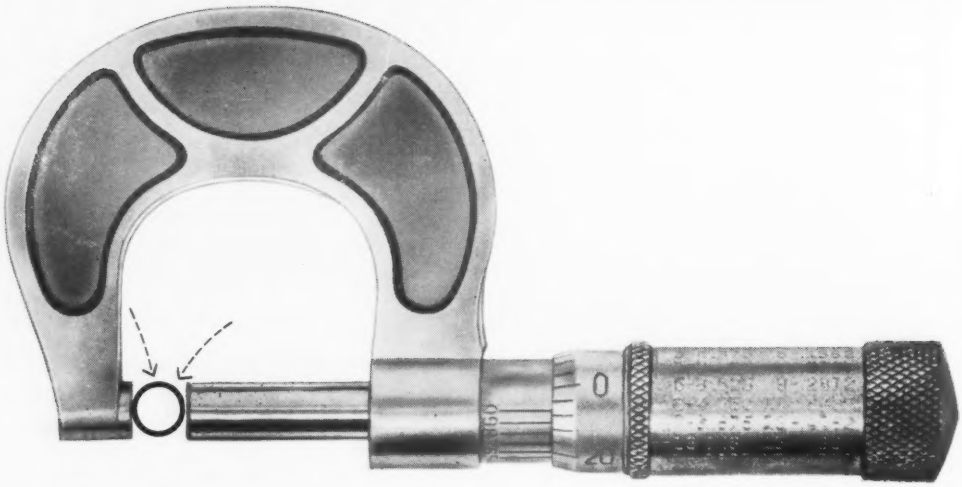
The Roman bulbs are rather smaller than ordinary hyacinth bulbs and they are quite expensive. The white variety if planted in August or September will flower in November. Their perfume is unique. The flowers are tall and elegant, rather like oversized white bluebells. The scent will fill a room, and it may be almost exactly imitated by 10 parts of pure Benzyl Acetate and 1 part of Eugenol.

—C. Farmiloe, *S.P.C.* 31: 468, 1958

Perfumes and Their Production

Publication of the book "Perfumes and Their Production" by E. S. Maurer, published by United Trade Press Ltd. (publishers of *Soap, Perfumery and Cosmetics*) of London, has just been announced. The author, a founder of the Society of Cosmetic Chemists of Great Britain has over thirty years of experience as a perfumer and cosmetic chemist and is now senior perfumer and cosmetic chemist for Lautier Fils Ltd. of London. The book is intended as a day-to-day reference work for those engaged in the utilization of perfumery raw materials. It is not a perfume formulary.

Part I, "An Introduction to the Study and Handling of Perfumes" includes seven chapters devoted to the perfumer's training, laboratory techniques, purchase and storage of raw materials, compounding, aging and filtration, formulation, perfuming soaps, cosmetics and toilet and household preparations and top notes in perfumery. Part II is a systematized and informative discussion of all of the commonly used synthetics and isolates, classified by chemical structure, and provides suggestions on the utilization of most of these materials with notes on specific applications and blending properties.



For a

SMALLER TABLET

or a tablet of

HIGHER POTENCY

use Baker NEW ALUMINUM HYDROXIDE—TYPE AA-D

• higher assay • higher activity • more dense powder

In your formulation of Aluminum Hydroxide you want to provide greater potency or a tablet of smaller size. Now J. T. Baker's new Aluminum Hydroxide Type AA-D makes this possible.

Aluminum Hydroxide, U.S.P. Dried Gel—Type AA-D—High Assay—High Activity—Dense, while complying with U.S.P. specifications, also provides:

ASSAY—An assay range of 54.0-58.0% Al_2O_3—an average of more than 10 per cent relative increase in Al_2O_3 content over the minimum U.S.P. requirement of 50% Al_2O_3.

ACTIVITY—Consistently higher activity. Specifications assure an acid-consuming capacity of 280 ml. N/10 HCl per gram—better than 10 per cent more activity than required to meet the U.S.P. specification.

DENSITY—Controlled within the range of 3.8-4.5 ml. per gram (about 20 lbs. per cubic foot). Occupies only about half the volume of competitive dried gel powders.

Baker Aluminum Hydroxide—Type AA-D is free-flowing, pours and mixes readily, handles easily, is less dusty and doesn't stick to side walls of containers.

Let Baker Aluminum Hydroxide — Type AA-D help you formulate an improved tablet. Gain the benefit of higher assay and higher activity in a denser, yet free-flowing, powder. Write for your sample to study in your laboratory.

J. T. Baker Chemical Co.

REAGENT • CHEMICAL • FINE • INDUSTRIAL

Phillipsburg, New Jersey

Compounder's Corner

The Gordon Conferences

I've just returned from my annual week at a Gordon Conference and each year I am very happy to build my summer plans around a Conference. This time it was Food and Nutrition; on other occasions it has been Steroids or Medicinal Chemistry. There are still other conferences closely related to the pharmaceutical and occasionally to the cosmetic industry. All that I have attended over the years have a single trait in common—quality. The speakers report on work so new that it has not been published elsewhere and is often still in progress; the discussion is hot and heavy where there is a possible element of controversy and is always well-informed and provocative. The group at each Conference is limited to one hundred, which avoids the mob scenes common at other scientific meetings, and the Chairman of each Conference strives to maintain a balance between industry and academic scientists. There are no afternoon sessions in this vacation country so that those in attendance have an opportunity to know each other socially as well as professionally at the swimming hole and on the golf course, as well as at informal meals and the very informal snack bar after the evening session.

Emulsification with Lecithin

Oil-in-water emulsions have been undergoing extensive clinical investigation for intravenous alimentation. The stabilizing agent in most of the emulsions that have been tested was a purified preparation of soybean phosphatides. These preparations, even after so-called purification, are complex mixtures of phosphatides and other materials. The presence of such impurities and the variation in their composition from one preparation to another may contribute at times to some of the adverse reactions observed on administration of these emulsions. This study was undertaken therefore by D. A. Yeadon, L. A. Goldblatt and A. M. Altschul (*J. Am. Oil Chem. Soc.* 35: 435, 1958) to investigate the use of highly purified phosphatides, principally lecithin, in emulsion preparations. A small scale emulsion stability test was developed for the small quantities of highly purified fractions made available for this purpose. Highly purified lecithin was found to be an inefficient emulsifier producing emulsions particullarly unstable to autoclaving, a requisite procedure in the sterilization of emulsions for use in intravenous alimentation.

Various materials were added back to the purified lecithin to determine their influence on emulsification. Such materials included fatty acids, carbohydrates, other phosphatides, and combinations of these materials. Addition of fatty acids improved considerably the emulsification properties of the lecithin preparations, but in no instance did any of the emulsifiers equal in their emulsification properties that of the soybean phosphatide preparations ordinarily used in emulsification.

The stability tests, generally applicable to liquid emulsions, consists of transferring a 10 ml. sample to a 15 ml. centrifuge tube, stoppering the tube, shaking at about 600 strokes per minute for one hour, centrifuging at 1,800 r.p.m. for one hour and measuring the volume of separated oil. The physical stability or "stability index" of the emulsion is obtained by calculating the percentage of oil remaining emulsified.

A "good" emulsion separated only about 0.1 ml. of oil per 10 ml. of emulsion (stability index of about 94 per cent or better) whereas a "poor" or "bad" emulsion separated some 10 times this amount of oil (stability index of about 50 per cent or less). Reproducibility was good, as indicated by a range of 91 to 96 in stability index for five determinations, using different preparations.

Acyl Sarcosine Surfactants

Acyl sarcosine surfactants are high molecular weight carboxylic acids, or their sodium salts, represented by the formula $CH_3(CH_2)_n$-$CON(CH_3)CH_2COOH$. These compounds may be considered as modified fatty acids in which the hydrocarbon chain is interrupted by an amidomethyl group. This modification imparts greater solubility and crystallinity to the molecule, increases the acidity of the carboxy group and enhances adsorption characteristics. SARKOSYL products are available from Geigy Industrial Chemical and the material used here is abstracted from a very informative technical bulletin issued by the company. The commercially available free acids are designated as SARKOSYL L, the lauroyl derivative, LC, cocosyl sarcosine, O, the oleyl, and S the stearoyl. The sodium salt is available as NL30, a colorless 30 per cent solution, and as a white powder, NL 97. The acyl sarcosines have good stability at raised temperatures and can be distilled at reduced pressure with some breakdown.

The acids are soluble in most organic solvents including glycols, glycerin, silicone, phosphate esters and aliphatic hydrocarbons. The O product exhibits the best non-aqueous solubility. The acids are insoluble in water but are appreciably soluble at slightly acid pH values; the alkali metal salts are more soluble than the corresponding fatty acid soaps. The sarcosine derivatives are surface active in both aqueous and non-

aqueous solutions, frequently enhanced by combinations with other colloids. In aqueous solution, surface activity will usually be better at a slightly acid pH corresponding roughly to the pK value of the acid (about 5.5).

The maximum foam volume of 0.1 per cent lauroyl sarcosine produced on shaking in a cylinder is attained at an acid pH. The viscosity and stability of the foam are also maximum at acid pH's. At acid pH's, foam is relatively unaffected by water hardness. The addition of fatty amides or polyethyleneglycol esters is reccommended for stabilizing foams in hard water at neutral and alkaline pH's.

Of special interest are the many synergistic effects obtained by mixing SARKOSYL products with other surfactants. The addition of relatively small amounts of sodium alkylaryl sulfonate has a dramatic effect on foam volume and stability at slightly alkaline pH's.

The effect of pH on detergency characteristics varies with the substrate and soil type. For unbuilt sodium lauroyl sarcosinate, maximum detergency on greased wool is obtained under slightly acid conditions.

The salts generally yield aqueous solutions with much lower viscosity than do the fatty acid soaps. A notable exception is the triethanolamine salt of LC which forms gels at 20 per cent concentration or higher. The acids are viscosity boosters and may be used to thicken solutions of surfactants.

Available experimental and usage information indicate that the SARKOSYL products are satisfactory for general cosmetic and topical application. Sodium oleoyl sarcosinate has been described as a very effective skin detergent of unusual mildness the dermatological characteristics of the other acylated sarcosines are as noteworthy. Ten per cent solutions of the sodium salts of L, LC and O at neutral or slightly acid pH's rate equal with 10 per cent sodium lauryl sulfate in the Draize-Woodard rabbit eye irritation test. Dilute solutions of NL30 may be used on the mucous membranes of the nose and throat.

Sodium lauroyl sarcosinate has been fed to weanling rats at two per cent in their daily diet over a six month period without effect on weight gain, feeding efficiency, general health and behavior; examination of the internal organs revealed no abnormalities. The LD50 on a single oral dose is about five grams per kilo for rats. The LD50 for a single intravenous dose is 175 mgms./kilo for rats.

Sodium lauroyl sarcosinate inhibits hexokinase at concentrations as low as 0.03 per cent; it is less effective against aldolase. Sodium lauroyl sarcosinate has no effect on rennin, pepsin or pancreatic trypsin; salivary and pancreatic lipase are inhibited.

It inhibits the bacterial flora of human saliva at concentrations as low as 0.25 per cent. The addition of 0.5 per cent sodium lauroyl sarcosinate to human saliva will reduce the bacterial count by 90 per cent in five minutes, and by 99 per cent in four hours; after 24 hours, the bacterial count may recover as much as 10 per cent.

Aqueous dispersion of the L acid exhibits bacteriostatic activity at 100 ppm against Staph. aureus, E. coli, B. mesentericus and Sarcina species; LC is slightly less active, while O and S are almost ineffective. SARKOSYL L is fungistatic at one per cent in aqueous dispersion.

The use of sodium lauroyl sarcosinate is a foaming agent in dentifrice was first suggested in 1939 (German patent 675,827). More recently, the finding that sodium lauroyl sarcosinate reduces dental decay has led to the widespread use of the product in tooth paste and related products. The anti-cariegenic activity, demonstrated by decreased incidence and severity of dental caries, is associated with the product's ability to inhibit bacterial hexokinase, thus preventing decomposition of carbohydrates and development of acidity in the saliva. The activity of sodium lauroyl sarcosinate is relatively long lived because of its strong adsorption on dental plaque.

Dental creams, liquid dentifrice, mouth wash and tooth powders containing sodium lauroyl sarcosinate are described in U. S. patent 2,689,-170. The addition of polyphosphate, ethylenediamine tetraacetate, citrate or related sequestrants to sodium lauroyl sarcosinate tooth pastes is claimed in U. S. patent 2,772,203 to stabilize viscosity.

The non-corrosive properties of sodium lauroyl sarcosinate are especially significant for aerosol dentifrice formulations.

As cosmetic detergents, the acyl sarcosines combine the more desirable features of both fatty acid soaps and alcohol sulfates. Usable at neutral and acid pH's, they have adequate cleansing power yet are mild on the skin with little or none of the "scroopy" feel of many synthetic detergents. They adsorb strongly, softening and improving manageability of the hair. They are especially useful in aerosol and in acid tint shampoos as well as in conventional clear and cream formulations.

NL30 is generally preferred for shampoos, because of convenience of handling and excellent color. The L product, is suggested for potassium and alkanolamine formulations, while LC is recommended for gel shampoos and economy formulations. O and S are useful as modifiers, conditioners.

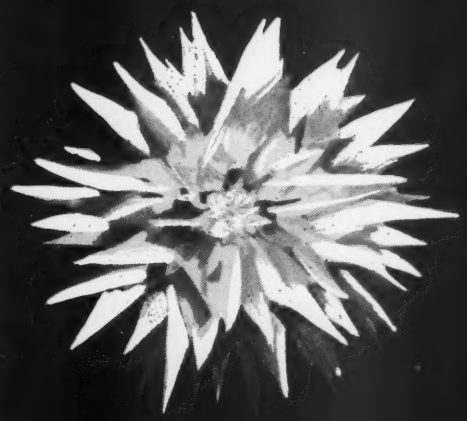
NL30 performs satisfactorily in hard water when properly fortified. Used alone, it tends to deposit calcium and magnesium salt crystals; this may be prevented by addition of sequestrants as mild and as weak as citrate, but best results are obtained with surface-active dispersants. Lathering properties are greatly enhanced by adjusting the pH to 5.5-6.0, or by adding alkanolamides.

For aerosol formulations, neutral or alkaline solutions of triethanolamine or sodium salts of the lauroyl sarcosine are non-corrosive in 10 per cent concentration. The corrosive action of sodium lauryl sulfate on unlined steel cans is readily controlled by adding 2 to 3 per cent of sodium lauroyl sarcosinate.

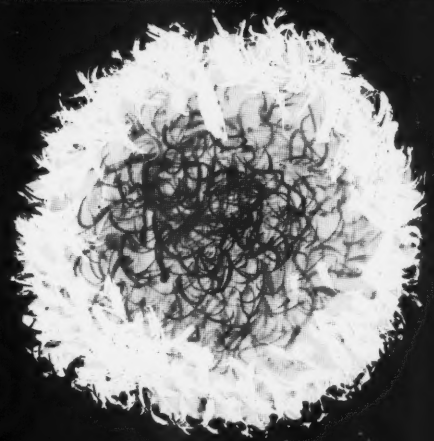
Lauroyl sarcosine is an ingredient of a proprietary anti-dandruff preparation tetradecylamine lauroyl sarcosinate, in combination with lauryl trimethyl ammonium polythionate.

Combinations of copper gluconate and sodium lauroyl sarcosinate are claimed effective as deodorants (U. S. patent 2,767,200).

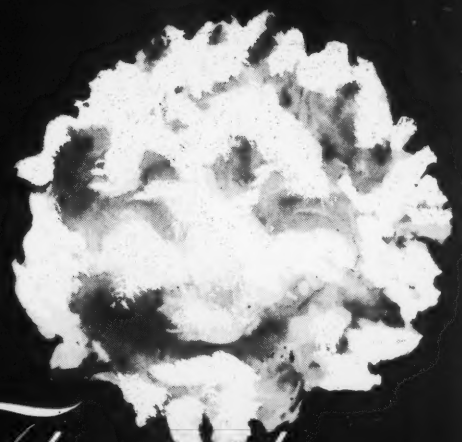
Colorless, practically tasteless at use concentration, low in toxicity, the SARKOSYL surfactants are of special interest in topical formulations for improving wetting and penetrating properties of pharmaceutical products. NL30 and NL97 are suggested for use in nasal and throat sprays, mouth washes, douches, suppositories, lotions and balms, also as stool softeners.

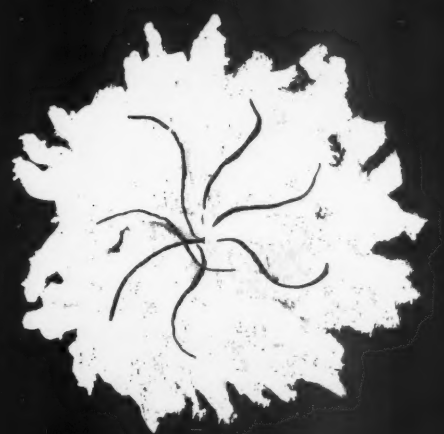


BOUQUET 54 ..... by **Florasynth**



...as *modern* as tomorrow ...as *practical* as today!

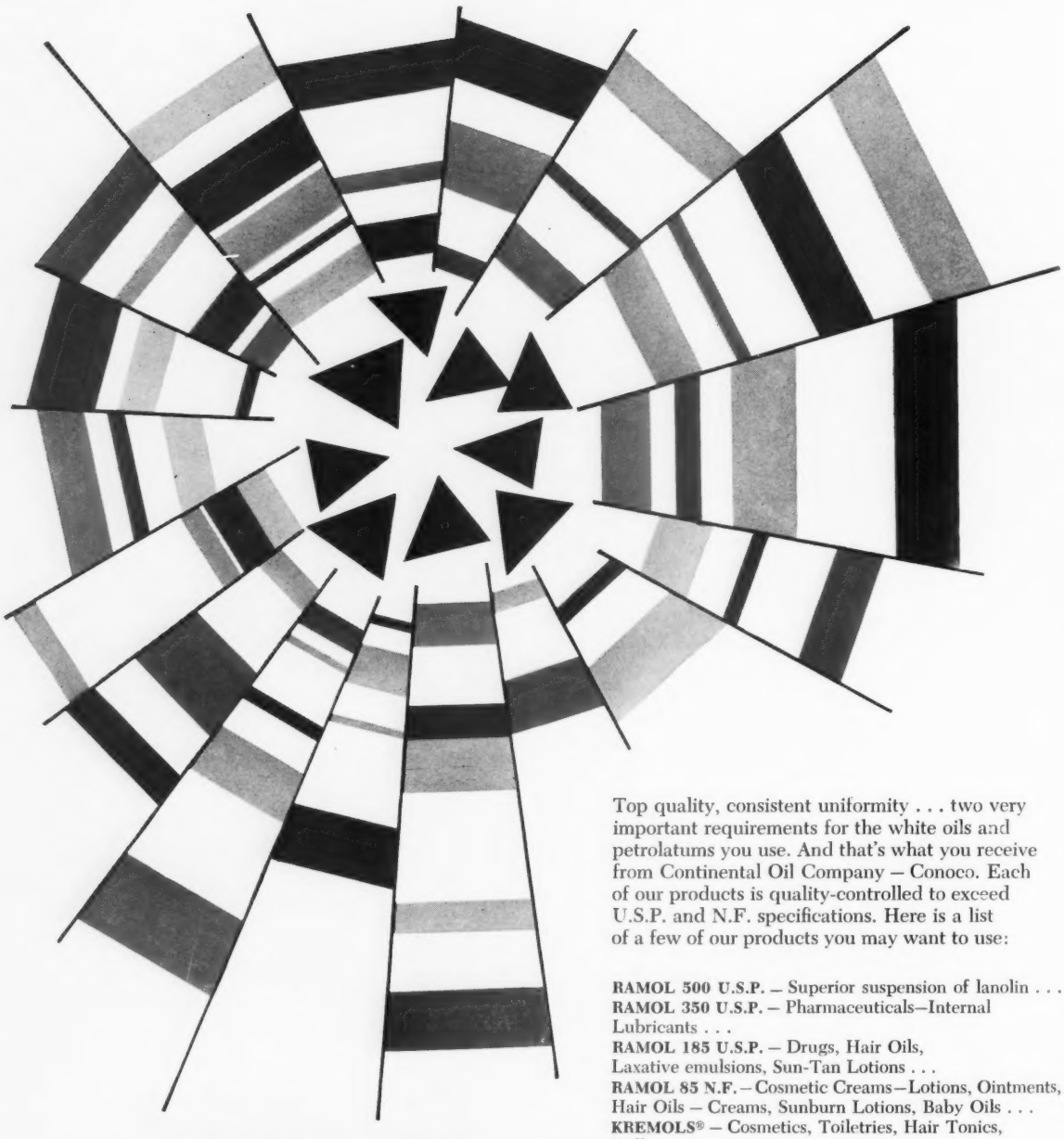




Florasynth LABORATORIES, INC.

EXECUTIVE OFFICES 900 VAN NEST AVE., (BOX 12) NEW YORK 62, N. Y.
CHICAGO 6 • LOS ANGELES 21 • Cincinnati 2 • Detroit • Dallas • Memphis
New Orleans • St. Louis 2 • San Francisco • San Bernardino
Florasynth Labs. (Canada Ltd.) • Montreal, Toronto, Vancouver, Winnipeg
Agts. & Dist. in Mexico-Drogueria & Farmacia Mex. S. A. Mexico 1, D.F.

The latest creation of Florasynth for those progressive manufacturers seeking fresh meaning and new loveliness in their perfumes, cosmetics and cosmetic products.



Top quality, consistent uniformity . . . two very important requirements for the white oils and petrolatums you use. And that's what you receive from Continental Oil Company – Conoco. Each of our products is quality-controlled to exceed U.S.P. and N.F. specifications. Here is a list of a few of our products you may want to use:

RAMOL 500 U.S.P. – Superior suspension of lanolin . . .
RAMOL 350 U.S.P. – Pharmaceuticals–Internal Lubricants . . .
RAMOL 185 U.S.P. – Drugs, Hair Oils, Laxative emulsions, Sun-Tan Lotions . . .
RAMOL 85 N.F. – Cosmetic Creams–Lotions, Ointments, Hair Oils – Creams, Sunburn Lotions, Baby Oils . . .
KREMOLS® – Cosmetics, Toiletries, Hair Tonics, Brilliantine . . .
BRILLOL® – Exceptionally low-viscosity for toiletry preparation.

POSSIBILITIES UNLIMITED . . .

Why not investigate the possibilities offered in Conoco's complete line of white oils and petrolatums. We'll be glad to send you samples.

with the high quality, consistent uniformity of

CONOCO WHITE OILS and PETROLATUMS

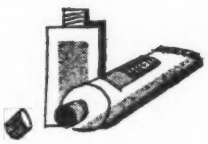
CONTINENTAL OIL COMPANY

SHERWOOD REFINING DIVISION

P. O. Box 192, Englewood, New Jersey, U. S. A.

European Sales Office: P. O. Box 1207, Rotterdam, The Netherlands

CONOCO Petrochemicals



Advancing Therapy

Buffered Ferous Sulfate

Buffered ferrous sulfate in uncoated tablets (Fermalox) has a high absorption index, as determined by use of radioactive iron (Fe^{59}) as a tracer. Each tablet contains 200 mg. of ferrous sulfate buffered with 200 mg. of magnesium aluminum hydroxide. Reticulocyte and hemoglobin response to buffered ferrous sulfate is highly satisfactory. When this preparation is prescribed according to A. H. Price, L. Erf and J. Bierly (*J.A.M.A.* 167:1612, 1958) clinical response is obtained with 44 per cent of the dosage of ferrous sulfate recommended by the Pharmacopeia of the United States. The adverse reactions of nausea, burning sensations, diarrhea, and abdominal cramps are almost completely avoided by use of buffered ferrous sulfate.

The buffer, magnesium aluminum hydroxide, being adsorbent as well as slightly alkaline, tends to adsorb the phosphorous complexes which interfere with full utilization of ferrous sulfate. The use of an uncoated, rapidly disintegrating tablet allows the acid gastric juice to work advantageously for the utilization of the ferrous sulfate. The uncoated tablet is readily broken down, freeing ferrous ions and making them readily available in the first portion of the duodenum, where the most active absorption of iron takes place.

Expectorants

Most men who have given thought to the term "expectorants" as drugs used for the purpose of increasing the respiratory tract fluid would agree that the term is unfortunate, since there is in it the implication that the effectiveness of such drugs can be measured in terms of the sputum produced. This is what Alstead (1941) considered that he had done when he pronounced ammonium chloride ineffective as an expectorant because it had not increased expectoration. But when Holinger, Basch, and Poncher (1941) collected respiratory tract fluid by means of postural drainage and bronchoscopic suction they found that the expectorant drugs liquefy the respiratory tract fluid quite appreciably. Boyd (1954) pointed out that, in the first place, cough due to irritation of the pharynx cannot be relieved by expectorants because the respiratory tract fluid arises entirely from sources below this area. In the second place, one could certainly not expect to influence irritations of the diaphragm and pleura. And in the third place, there are pharmacological agents that undoubtedly increase respiratory tract fluid but are nevertheless clinically unacceptable as expectorants for the treatment of cough because they produce their effects only at the cost of a prohibitive amount of side-reactions and toxicity. Nevertheless, there is some scientific evidence to support clinical impression of the value of drugs that increase respiratory tract fluids.

On the level of animal experimentation, ammonium chloride has been found to augment the output only if the gastric branches of the vagus are intact, indicating that this compound acts through irritation in the stomach. It is an old clinical favorite, despite the fact that it is disagreeable in taste and objectionably diuretic in some patients.

The iodides can also be shown to act through initiation of the gastric reflex. No experimental evidence of direct action on the bronchial glands exists, but it is nevertheless possible that some of the effect may result from partial respiratory tract excretion of iodide.

Ipecac, which pediatricians often prefer to any other expectorant, appears definitely to act through the gastric reflex, but part of the expectorant action of this drug may be an expression of its potential emetic action since increase in at least pharyngeal and salivary secretions is a part of nausea.

Banyai and Cadden (1943) showed that carbon dioxide by inhalation has a directly exerted expectorant action through liquefying the mucopurulent inflammatory exudate that stagnates in the bronchial tract.

In halation of warm, moist air, as from the familiar steam kettle, appears to have a definite expectorant action through diluting the respiratory tract fluid, but it has not been shown experimentally that secretory production of the fluid is increased. However, when the water vapor inhaled is in the form of Alevaire (sterile aqueous solution of Superinone [oxyethylated tertiary octylphenol-formaldehyde polymer], in combination with glycerin and sodium bicarbonate), it is considered by many observers to be a true topically acting expectorant.

Boyd found that, while cough syrups as such may have a buccopharyngeal demulcent and sialogogue (stimulation of salivary flow) effect, pharmacological action as expectorants cannot be demonstrated for them unless the syrup itself contains an expectorant such as tolu balsam or possibly licorice.

—H. Beckman, *J.A.M.A.* 167: 1638, 1958

Antifungal Mechanism

The nature of the defense mechanism possessed by living tissues which keeps dermatophytes from invading them was investigated by A. L. Lorincz, J. O. Priestley and P. H. Jacobs (*J. Invest. Dermatol.* 31: 15, 1958). The growth of *T. mentagrophytes* was found to be inhibited intraperitoneally in mice even under conditions where host cells as well as

tissue fiuid proteins were excluded by means of cellulose dialysis membranes. Additional evidence is also presented to strongly suggest the existence of somes dialyzable, water-soluble, unstable substance in serum and tissue fluids which suppresses the growth of dermatophytes and thus permits them to thrive only in places in the host not reached by such fluids.

Comment: It should be superfluous to point out that further investigation along these lines might well turn up an antifungal compound useful in treatment.

Sublingual Heparin

Clarin, by Thomas Leeming & Co., is a sublingual tablet containing 1500 I.U. of potassium heparin. The indications for this product, as reported in an investigation by H. L. Fuller, are in the treatment of hyperlipemia, especially following fat meals, without observable effect on the blood-clotting mechanisms. Results indicate that sublingual administration of heparin in doses too small to act as an inticoagulant will reduce the fat content of the blood serum. This closely parallels the effects following parenteral administration of heparin and despite the inactivity of the drug when swallowed. Based on 191 determinations in 34 subjects, after a standard fat meal, lipemia rises sharply after the second hour and is still increasing, although at a lesser rate, after six hours. When sublingual heparin is given after the same meal, the blood fat content reached less than one-half the level and remained relatively constant after the fourth hour. No increase in coagulation time was detected. Dosages over 1500 units became progressively less effective.

Angina Combination

Ninety-three per cent favorable results by a new drug combination in the prophylactic treatment of angina pectoris were reported by Dr. Milton Plotz, Clinical Associate Professor of Medicine, State University of New York Medical Center in the August issue of Postgraduate Medicine.

Dr. Plotz, "Acute attacks were prevented or markedly reduced in 84 patients; In addition, anginal attacks were less frequent in nine patients. Therefore, favorable results were obtained in 93 per cent of patients, and over 50 per cent were able to discontinue the use of nitroglycerin entirely."

Penite, under investigation for the past two years, was recently made available to the medical profession by the G. W. Carnrick Co., Newark, New Jersey.

The new drug combination combines the action of nitroglycerin, pentaerythritol tetranitrate and reserpine.

Transdermine

The availability of experimental quantities of a new cream base material which apears to be effective in transferring active medicinal and cosmetic agents through the skin tissue has recently been announced by van Ameringen-Haebler, Inc.

Transdermine, the trade-marked name for this lecithin-like synthetic material, contains all of the major chemical entities present in natural lecithin, such as glycol esters of fatty acids, a phosphoric acid radical and an amino alcohol. It occurs as an ivory white wax-like solid which can easily be converted into an emulsified cream.

Extensive animal studies for primary irritancy and sensitivity revealed no significant adverse responses. Transdermine may be included in topical preparations in quantities up to 15 per cent without the need of a new drug application.

Optically Active Antihistamine

Schering Corporation, Bloomfield, N. J., with the announcement of "Polaramine" antihistamine, revealed that at least in this instance virtually all of the antihistamine activity resides in one of the optical isomers. As a result, the new product, dextrorotatory chlorpheniramine maleate, is administered in half of the dosage of the unresolved form, toxicity is very much reduced and clinical studies suggest reduced side effects. The repeat action tablet, for instance, contains 3 mg. in the outer layer and 3 mg. in the inner core for s u s t a i n e d antihistamine action throughout the day.

Intravenous Glycerol

Tests conducted at the University of Pennsylvania School of Medicine show that intravenous administration of solutions containing 5 per cent glycerol to humans and experimental animals cause no toxic or other undesirable effects. Human subjects have been given intravenously 50 Gm. of glycerol in a liter of solution which contained, in addition to the glycerol, 50 Gm. of glucose and 9.0 Gm. of sodium chloride (*J. Clin. Investig.* 1958, 619). No disturbances of cardiorespiratory or central nervous system function were observed and no significant hemolytic effects occurred.

Previously reported toxic effects of parenterally administered glycerol were not apparent. Indications were that these effects were due to the concentration of the solutions administered, differences in rate, etc. Where concentrated glycerol was administered, toxic effects were believed to be due to the osmotic disturbances of the undiluted glycerol rather than to any inherent toxicity of the glycerol molecule. Since these tests prove that dilute glycerol can be safely administered intravenously in considerable quantity, it might find application as an intraveous nutritional agent.

Alcohol and Tranquilizers

Alcohol and tranquilizers together do a better job of reducing anxiety in rats than either one does alone, Ernst Kopmann and Francis W. Hughes of the I.U. School of Medicine reported at the fall meeting of the American Society for Pharmacology and Experimental Therapeutics.

They said two drugs—phenaglycodol and meprobromate had a highly significant effect in reducing rats' ability to respond to light and shock in the dosage used. When these drugs were added to alcohol, the rats' ability to respond was reduced still further.

A third drug—chloropromazine—had no effect by itself in reducing rats' response. But when combined with alcohol, its effects were significant. Similar findings were reported for pentobarbital.

Other substances did not reduce the rats' ability to respond to shock, nor was there any reduction when the substances were added to alcohol. These included monosodium glutamate, a food additive, and resperine, another tranquilizer.

American Distilled Oils

Produced at our Patchogue, Long Island, N.Y. Factory

OILS

BALSAM PERU	CITRONELLOL	OLIBANUM	PATCHOULY
CASCARILLA	CLOVE	OPOPONAX	PIMENTO
CELERY	GERANIOL	ORRIS LIQUID, Conc.	SANDALWOOD
	NUTMEG		STYRAX

also CITRAL • EUGENOL • LINALOOL • RHODINOL

RESIN LIQUIDS

BALSAM PERU	CELERY	ORRIS
BALSAM TOLU	LABDANUM	STYRAX
BENZOIN	OLIBANUM	TONKA
	OPOPONAX	

Essential Oils • Aromatic Chemicals • Perfume Materials • Colors

70 *Years of continuous quality service — suppliers and manufacturers of*
Essential Oils • Aromatic Materials • Flavors • Colors

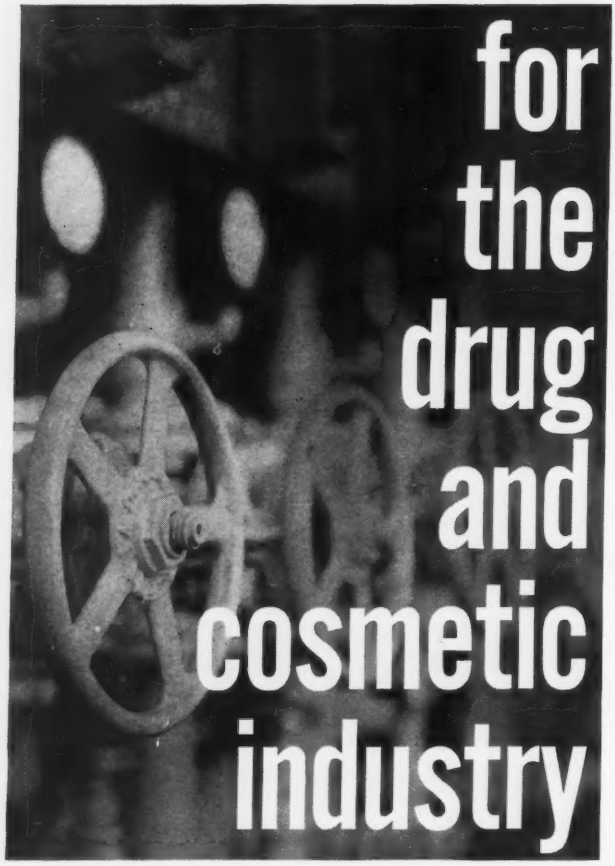
GEORGE LUEDERS & CO. NEW YORK GL REGISTERED TRADE MARK

GEORGE LUEDERS & CO.

427 WASHINGTON ST., NEW YORK 13, N. Y.

Chicago • San Francisco • Montreal • Philadelphia • Toronto

Established 1885



CHEMICAL INTERMEDIATES
acetaldehyde
acetanilide
acetic anhydride
benzoquinone
isobutyraldehyde

STABILIZERS
Tenox antioxidants for Vitamin A and such oils and waxes as paraffin, mineral oil and lanolin

PLASTICIZERS
dimethyl phthalate
diethyl phthalate

SOLVENTS
acetic acid
acetone
ethyl acetate
ethyl alcohol
isobutyl acetate
isobutyl alcohol
isopropyl acetate

HEMOSTATIC AGENT and ADSORBENT
oxidized cellulose

MISCELLANEOUS
triacetin
tributyrin

For samples of these Eastman chemicals, call or write our nearest sales office.

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York—260 Madison Ave.; Framingham, Mass.—65 Concord St.; Cincinnati—1813 Carew Tower; Cleveland—13212 Shaker Square; Chicago (Skokie)—4200 Dempster Ave.; St. Louis—10 S. Brentwood Blvd.; Houston—1300 Main St. **West Coast: Wilson Meyer Co.,** San Francisco—333 Montgomery St.; Los Angeles—2060 S. Garfield Ave.; Portland—520 S. W. 6th Ave.; Salt Lake City—73 S. Main St.; Seattle—821 2nd Ave.

Eastman CHEMICAL PRODUCTS, INC.
KINGSPORT, TENNESSEE, subsidiary of Eastman Kodak Company

SPOTLIGHT QUALITY... With Harchem's Century Brand Stearic Acid

▲ A clean, slow burning candle demonstrates the quality and stability Century Brand Stearic Acid puts in your product.

Good ingredients make good products. Whether you make lipsticks, lotions or creams, pharmaceuticals, soaps or candles, the quality of stearic acid you use will determine the quality and the ultimate sales success of your product.

Candles are a good case in point. Slow burning candles must burn cleanly, white candles must not yellow and colored candles must hold their true shade. These qualities cannot be realized without the color and oxidation stability found in Century Brand Stearic Acid.

In addition to single, double and triple pressed grades of Stearic Acid, Harchem makes other animal and vegetable fatty acids. Write on your company letterhead for a copy of our new publication that gives the specifications of all these Century Brand Fatty Acids. Ask for Bulletin H-31.31.

HARCHEM® CENTURY BRAND

HARCHEM DIVISION
WALLACE & TIERNAN, INC.
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
IN CANADA: W. C. HARDESTY CO. OF CANADA, LTD. TORONTO

Skin Research

Skin Vitamin D

Evidence presented by V. R. Wheatley and R. P. Reinertson (*J. Invest. Dermatol.* 31: 51, 1958) shows that human epidermis contains appreciable amounts of pro-vitamin D. The amount present is, in fact, so high that if it were quantitatively converted to the vitamin, about 3 sq. in. of epidermis would give the human daily requirement of the vitamin (400 I.U.). The exact location of the pro-vitamin in the epidermis is at present uncertain, but it is no longer necessary to postulate that the conversion of the pro-vitamin takes place on the skin surface. Studies on the effects of radiations of various wavelengths have shown that while radiation of 280 mμ is most effective in curing rickets in rats, that of 297 mμ is 80 per cent as effective. Indeed the use of radiation of shorter wavelengths is undesirable since this would cause photo-decomposition of the vitamin D formed.

Sufficient radiation could penetrate through the stratum corneum into the lower layers of the epidermis to effect the conversion of the pro-vitamin. The vitamin so-formed could then be readily absorbed into the blood stream.

Large amounts of cholesterol are also present in epidermal lipids, and C^{14}-acetate experiments have shown that synthesis of cholesterol takes place in the epidermis. It is possible that synthesis of 7-dehydrocholesterol takes place at the same time. Some 7-dehydrocholesterol is present in the dermal lipids, but it is not yet certain whether this is derived from follicular or eccrine epithelium, whether it is situated elsewhere in the dermis, or whether it is actually present in the sebaceous glands. The latter possibility is, however, considered unlikely.

Though the presence of pro-vitamin D in the skin is thought to be related only to the formation of vitamin D, it is possible that the 7-dehydrocholesterol may play an additional role in the metabolism of the skin. Its presence in the epidermis suggests that it could play a part in the process of keratinization.

Percutaneous Absorption

Previous studies have shown that 1-2 per cent of topically applied hydrocortisone and cortisone acetate is absorbed from normal skin sites, and that penetration of hydrocortisone occurs by both the transfollicular and transepidermal routes. Absorption of hydrocortisone from mucous membrane surfaces, in which the superficial barrier is presumably lacking, ranges from 26-29 per cent.

Penetration of hydrocortisone -4-C^{14} and cortisone -4-C^{14} was not detected by the gas-flow cell by F. D. Malkinson (*J. Invest. Dermatol.* 31: 19, 1958) since the quantitative absorption of these hormones is well within the inherent percentage of error of this device. The absorption of approximately 78-90 per cent of hydrocortisone -4-C^{14} from stripped skin sites in 4-6 hours contrasts markedly, however, with the lack of absorption of cortisone -4-C^{14} acetate from stripped sites over the same time period. This disparity is perhaps explained by one of 2 factors: either the dermal-epidermal basement membrane acts as a barrier to the penetration of cortisone so that absorption occurs mainly by the transfollicular route, or absorption differences are explained by the use of cortisone -4-C^{14} as the acetate compound in contrast to hydrocortisone -4-C^{14} as the free alcohol.

In contrast to cortisone and hydrocortisone, testosterone was found to penetrate normal skin in appreciable quantities. This fact had previously been established long ago by measurement of physiological responses following testosterone inunction, but the previous conclusion that testosterone is rapidly and quantitatively absorbed through intact skin must be modified. Hormone uptake measures up to 25 per cent in 6-7 hours, when demonstrable, and 42-59 per cent in 48 hours, while in 1 subject 32 per cent of the applied material still remained on the skin surface 5 days later.

Penetration of testosterone -4-C^{14} through stripped skin sites was exceedingly rapid with 78-91 per cent of the hormone being absorbed within 3 hours. Absorption is appreciably slowed after the 2nd hour following application, and in 1 subject small amounts of material were still detectable after 14 hours. Similar slowing following initial rapid absorption is seen after application of hydrocortisone -4-C^{14} to stripped skin sites. Since absorption may depend largely on diffusion gradients once the barrier is removed, these findings suggest an initial rapid penetration while tissue (corium) levels are rising. Subsequent slowing occurs perhaps as tissue concentrations rise faster than the steroids are "cleared" by the circulation allowing tissue and skin surface concentrations to come into closer equilibrium. No conclusions could be drawn from the method used concerning outward passage of material once it had entered the corium.

Ultraviolet light studies were undertaken to determine whether these rays alter the barrier to permit increased absorption. No such effect could be demonstrated. By autoradiography Scott and Katz have shown more rapid absorption of hydrocortisone -4-C^{14} within 1 hour after an erythema dose of ultraviolet light is given to skin sites pretreated for 1

hour with hydrocortisone ointment. Failure to confirm this finding with an identical preparation of test areas in 3 subjects indicates that if ultraviolet light has an absorption promoting effect it is quantitatively small.

Thiosalicylic Acid Sensitization

Late in 1956, an opportunity arose for E. Gaul (*J. Invest. Dermatol.* 31: 91, 1958) to test two patients for the sensitizing component in thiosalicylic acid. Each was positive to merthiolate 0.1 per cent aqueous. The test substances were thiophenol, salicylic acid, benzoic acid and thiosalicylic acid in dilutions of 0.001 per cent in alcohol and mercuric chloride 0.001 per cent aqueous. Neither subject developed any reaction. Thiophenol has such an offensive and penetrating odor that tests in higher concentrations were not attempted. Recently, another candidate was found. The initial patch tests yielded a flaring eczematous response to merthiolate 0.1 per cent aqueous which persisted for six weeks. There was a similar but less intense reaction to tetramethylthiuram monosulfide 1 per cent in petrolatum, and a delayed eczematous reaction to paraphenylenediamine two per cent in petrolatum. This persisted seven weeks. Mercuric chloride 0.1 per cent aqueous, formalin 1 per cent aqueous and mercaptobenzothiazole 1 per cent in petrolatum displayed only erythema, and this disappeared in less than three days.

Thiophenol appears to have the sensitizing component. The positional effects of the SH group on the ring are not known. The thiosalicylic acid solution was freshly prepared, and this could explain the absence of a typical response. Aging of the solutions appears to enhance the sensitizing potential. Concentration of old solution by evaporation must also be considered. Exposure to air yields dithiosalicylic acid. Its activity has not been studied. In addition, the dilution could have a sharp end point for reaction. The test with thio-b-naphthol was done by contact method because of concern about toxicity. The present experience suggests using the closed method the next time this substance is tested. The response to thioglycerol is evidence that the SH group itself is not responsible when present in aliphatic hydrocarbons. The widespread use of thioglycolic acid by the public is additional confirmation. The reaction to thiophenol is considered a true example of cross sensitivity.

Gelatin and Brittle Nails

It has been reported that ingestion of large amounts of gelatin corrects severe nail defects. In this paper from New York Medical College and the Metropolitan Hospital, New York, M. Schwimmer and M. G. Mulinos (*Antibiot. Med. and Chemother.* 4: 403, 1957) describe an investigation of the validity of this claim, 551 healthy members of the nursing staff being examined for nail defects. Of these, 121 had some defect, the commonest being brittleness, and 20 with the most severe defects were chosen for the investigation. Each subject received 7.5 g. of gelatin daily to take in any liquid of choice, and was seen frequently. Of the 18 patients who continued the treatment for 11 to 16 weeks, 2 showed an excellent response, the lesions clearing up completely; in 9 the results were good and in 4 moderate, while in 3 there was no response. The mode of action of the gelatin is not known. It is pointed out that about half the amino-acids contained in gelatin are of the type which induces specific dynamic action. It is suggested that chronic anemia in the nailbed capillaries resulting in local malnutrition could produce the nail dystrophies, and that this might be counteracted by the specific dynamic action of the gelatin.

Silicon in Skin

Silicon occurs regularly in the skin and its appendages. It is accumulated in form of an alkali-insoluble component in keratinous structures, particularly in the epicuticle of hair and feathers. The formation and accumulation of this alkali-insoluble component with its enormous silicon content probably has biochemical and functional significance. It may contribute to the solidity and great chemical resistance of keratinous structures. It may play a role as a barrier of absorption. In cases of incomplete keratinization such as occurs in psoriasis and exfoliative dermatitis the silicon content of the insoluble residue is low while in ichthyosis which can be regarded as a "superkeratinization process" it is extremely high. Thus, possibly the uptake of silicon into the insoluble residue plays a role in the keratinization process.

Analysis of different cutaneous structures for their silicon content by S. Fregert (*J. Invest. Dermatol* 31: 95, 1958) yielded the following values, expressed as SiO_2 per gm. dry weight: epidermis 106 $\pm$ 2.7 γ, hair 90 $\pm$ 2.0 γ, nails 56 $\pm$ 2.2 γ, wool 33 γ, feather 340 γ, male dermis with weak hair growth 19 $\pm$ 0.5 γ, male dermis with strong hair growth 25 $\pm$ 0.9 γ. Internal organs yielded values of from 18-56 γ SiO_2 per gm. dry tissue.

Keratinization

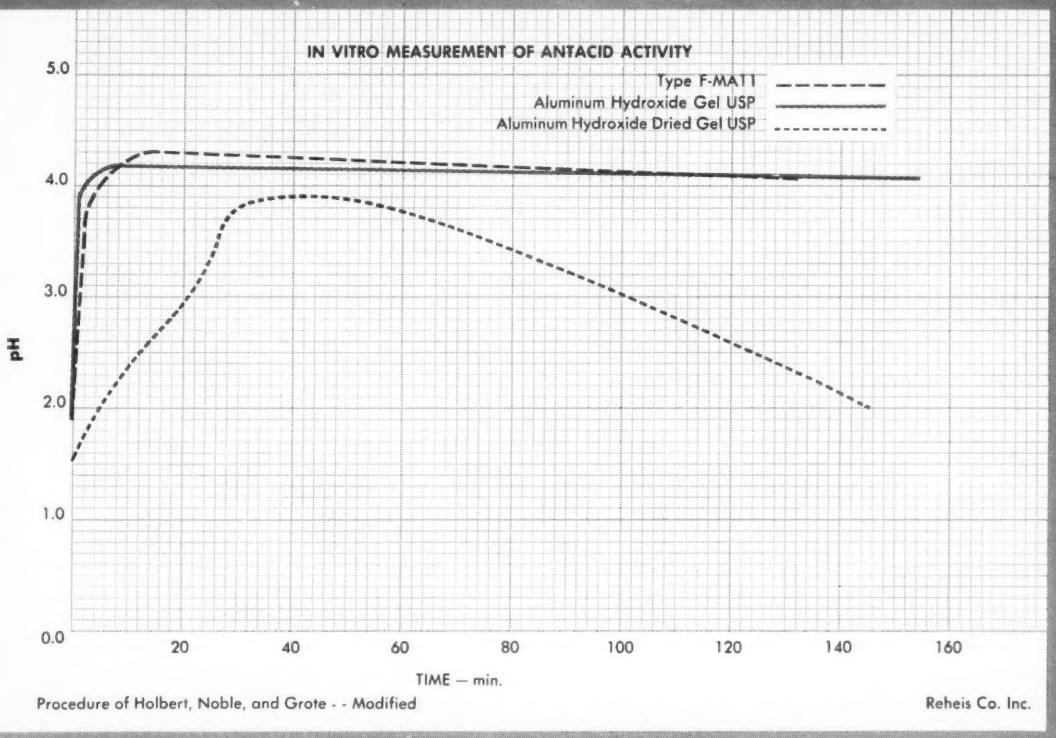
Two processes contribute to the development of the horny layer according to P. Flesch (*J. Invest. Dermatol.* 31: 63, 1958) A. Keratinization, i.e. the consolidation of fibrous precursors of the cellular layers of the epidermis to the fully formed keratin; B. Differentiation, or the decomposition of cytoplasmic and nuclear components to the non-fibrous constituents of the horny layer.

Comparison of the amino acid composition of whole human epidermis and of the horny layer indicate that during keratinization the over-all chemical change is slight. The only definitely established differences are the disappearance of hydroxyproline and an inconstant and variable rise in cystine content. The best working theory to account for the changes during keratinization is as follows: Keratinization is a two-step process. The first step is the formation of a fibrous precusor in the cellular layer of the epidermis, with little or no sulfur. This precursor then combines with sulfur-containing proteins or protein degradation products to form the consolidated keratin. This combination has been directly observed in electron microscopic pictures of the hair cortex.

The soluble components of the horny layer are essential for maintaining numerous biological functions of the skin surface. Among them the free amino acids are most important.

In pathologic horny layers these components undergo qualitative and quantitative changes. Psoriatic scales are characterized by increased water-soluble proteins, decreased free amino acids and a high pentose content. Analysis of these soluble components reveals constant values.

New Antacid



Aluminum Hydroxide—Magnesium Carbonate Co-Precipitate Dried Gel **Type F-MA11**

F-MA11, a finely-divided, white powder consisting of a combination of aluminum hydroxide gel and magnesium carbonate, now makes it possible to make tablets or powders having extremely prompt and prolonged acid neutralizing action in the optimum pH range. For the first time, the pharmaceutical manufacturer can make a product for the ambulatory patient which will have all the desirable features heretofore only inherent in Aluminum Hydroxide Gel U.S.P.

In vitro measurements of antacid activity, the graph above clearly demonstrates a favorable comparison with Aluminum Hydroxide Gel U.S.P. and a superiority over widely-accepted Aluminum Hydroxide Dried Gel U.S.P.

Write *today* for full data and samples of this newest Reheis antacid and buffer compound.

FINE REHEIS CHEMICALS

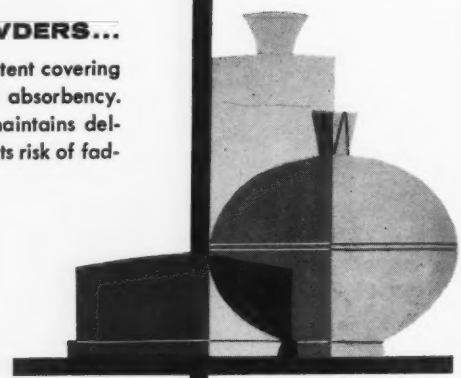
REHEIS COMPANY, INC.
Manufacturers of Fine Chemicals
BERKELEY HEIGHTS · NEW JERSEY

SPECIFY STURGE

precipitated
calcium
carbonate
u.s.p.

FOR POWDERS...

You get consistent covering powder and absorbency. Sturge PCC maintains delicate scent, cuts risk of fading colors.



FOR FILLERS...

Sturge PCC has the best consistency and texture for extending or pigmenting creams, lipsticks, or facial preparations.

Since 1823, Sturge has manufactured fine chemicals. Their laboratories are always available for studying any customer's problems. For a sample of Sturge PCC and further information, contact H. J. Baker & Bro.

Manufactured by
JOHN & E. STURGE LIMITED
Wheeley's Road
Birmingham 15,
England

Exclusive Distributor:
H. J. BAKER & BRO.
600 Fifth Avenue
New York 20, New York

Branch offices: Chicago · Atlanta · Savannah · Tampa

(*Continued from page 295*)

2. *Hartolan* (Croda)
3. *Lanethyl* (Croda)
4. *Lanethyl* LQ (Croda)
5. *Nimco Wool Wax Alcohols* (N.I. Malmstrom)
6. *Dusoran* (D.S. van Schuppen)
7. Cholesterol
8. *Golden Dawn Wool Alcohols B.P.* (Westbrook Lanolin). A cosmetic grade of lanolin alcohols produced by the caustic saponification of lanolin followed by the extraction of the unsaponifiable fraction which is subsequently deodorized and bleached[15].

B. Lanolin Fatty Acids

1. *Amerchol Lanolin Acids* (American Cholesterol)
2. *Nimco Lanolin Fatty Acids* (N.I. Malmstrom)
3. *Skliro* (Croda)

C. Lanolin Fatty Acid Soaps

1. *Lanamine* (Robinson Wagner)

D. Liquid Lanolin

1. *Lanogene* (Robinson Wagner)
2. *Lantrol* (Malmstrom Chem. Corp.)
3. *Fluilan* (Croda)
4. *Vigilan* (Fanning Chem.)
5. *Viscolan* (American Cholesterol)
6. *Dusoline* (D.S. van Schuppen)
7. *Liquid Lanolin 60* (Westbrook Lanolin)[16]

E. Waxy Lanolin

1. *Lanfrax* (Malmstrom Chem.)
2. *Lanwax #120* (Fanning Chem.)
3. *Waxolan* (American Cholesterol)
4. *Lanocerin* (Robinson Wagner)

F. Esters

Acetate esters

1. *Acetulan* (American Cholesterol). A liquid fraction of acetylated lanolin alcohols.
2. *Modulan* (American Cholesterol). Acetylated lanolin.
3. *Ricilan C* (American Cholesterol). This poly-ester is prepared by acetylation of the hydroxyl groups present in Ricilan B (ricinoleic acid ester of fractionated lanolin alcohols)[17]. The composition could include the mono-acetate ester of "sterol ricinoleate," since acetylation would occur on the ricinoleic hydroxyl; the acetate ester of aliphatic lanolin alcohol ricinoleate; and the di-acetate ester of dihydric alcohol ricinoleate.

The acetylation of all the hydroxyl

(*Continued on page 371*)

Reader's Questions . . .

Tonics and Astringents: *Astringent and skin toning lotions, for men and for women seem to retain their appeal and I would appreciate any comments you might wish to make concerning their formulation and their usefulness.*
SPRINGFIELD

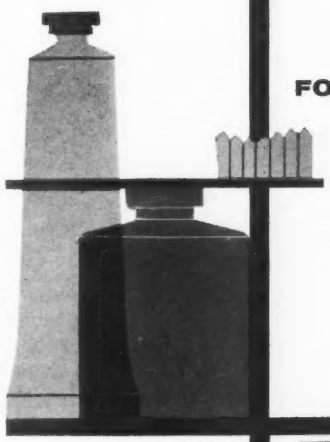
These preparations are called skin fresheners, strong and weak, when used by women as part of their skin conditioning treatments and are the after-shave lotion used by men. Although the toning lotion for women is suggested in many instances for the removal of last traces of make-up, its usefulness is limited. As a diluted solution of alcohol, with added astringents, the preparation will have relatively small action as a detergent or oil solvent. The basis for astringent solutions is alcohol, as high as 50 per cent in after-shaves and stronger astringents, as low as 20 per cent in mild lotions. Small proportions of suitable aluminum or zinc salts increase astringency; these also have some antiseptic action but this should be improved by the addition of one of the known antibacterials, including selected cationic surfactants. An increasing number of vegetable extracts are being developed for astringent purposes and claims for skin corrective action have ben made on their behalf.

Astringency itself is not too well-defined. Astringent preparation have a specific "puckering" action when they are applied to the lips and tongue and this remains one of the best, if non-quantitative, means of testing astringent action. Protein precipitation and swelling known to take place, with possibly skin tightening or pore-size reducing action; the feeling that this skin tightening may be occurring is in itself a valuable contribution to subjective cosmetic action.

Perfuming is always emphasized in these preparations. The perfume may well include antibacterial values, and, if menthol or a trace of peppermint or spearmint is present, provide apparent skin stimulation and cooling. If the alcohol content is low, the oil mixture must have sufficient solubility in the aqueous solution. Too sweet an odor is often used in men's preparations and sometimes in women's toning lotions. A non-persistant medicinal note, followed

SPECIFY STURGE

precipitated calcium carbonate u.s.p.



FOR DENTIFRICES...

Sturge PCC forms stable dispersions in glycerine-water mixtures. Gives you a chemically inert controllable polishing agent without taste or grit.

FOR PHARMACEUTICALS...

Sturge PCC is free from taste, gives you uniform texture and a high white color. Recommended for pill and tablet coatings, mixtures and powders.

Year after year, manufacturers of pills and tablets, dentifrices, and cosmetics continue to specify Sturge Precipitated Calcium Carbonate. Sturge PCC, produced by John & E. Sturge of Birmingham, England, has become the standard of excellence. Their experience and careful testing assure PCC of consistent quality—batch after batch.

Manufactured by
JOHN & E. STURGE LIMITED
Wheeley's Road
Birmingham 15, England

Established 1850

Exclusive Distributor:
H. J. BAKER & BRO.
600 Fifth Avenue
New York 20, New York

Branch offices: Chicago · Atlanta · Savannah · Tampa

Industry's Books . . .

The Science Of High Explosives, *by Melvin A. Cook, Director, Explosives Research Group, University of Utah, American Chemical Society Monograph Series, Reinhold Publishing Corp., New York, 440 pp., (1958), cloth,* **$22.50.**

This book describes detonation processes and related phenomena with theoretical interpretations and illustrations, and includes a vast amount of research material. Initiation, wave structure, propagation, the nature and rates of chemical reactions of detonations, ionization, radiations, shock and blast waves, and damage resulting from detonation—all are critically discussed and evaluated.

Soap, Perfumery & Cosmetics year book for 1958, *Edited by F. V. Wells, 305 pp., United Trade Press Ltd,. London,* **£1-10-0.**

This well-known buyers' guide needs little introduction to the industry since it is now in its 16th Revised Edition. The chief features of the new edition are an introductory article by Jack Pickthall, F.R.I.C., perfumery sections specially contributed by Cartwright Farmiloe and E. S. Maurer, F.L.S.; the latest production figures published in the U.K. and U.S.A.; and a revised section of standard specifications. The Laboratory Section, consisting mainly of tables, has again been enlarged; and the lists of associations and societies, etc. have been brought up to date. One of the most valuable sections is the 130-page end-portion of the book containing the Buyers' Guide.

How To Live With Diabetes, *by Henry Dolger, M.D., Chief, Diabetes Clinic, Mt. Sinai Hospital, and Bernard Seeman, W. W. Norton & Co., Inc., New York, 192 pp., cloth,* **$3.50.**

This book will help the diabetic live with his condition on the best possible terms, by providing him, his family, and his friends with a full understanding of the disease, the medical principles underlying its management, and the problems imposed and how they may be met. This is a book that should be read by everyone who has diabetes and also those who live with diabetics.

Perfumes And Their Production, *by Edward S. Maurer, F.L.S., M.R.I., Senior perfumer and cosmetic chemist, Lautier Fils Ltd., London, 313 pp., United Trade Press Ltd., London,* (VTER), cloth **30s.,-Postage Free.**

This book is intended as a day-to-day reference work and desk book for all those engaged in the practical utilization of perfumery raw materials. In Part I the reader is presented with a complete picture not merely of formulation alone but of the entire scope and organization of the perfumery industry from the point of view of approach, methods and technique. Part II is a systematized and informative discussion of all the commonly used perfumery isolates and synthetics, practical hints on the proportional utilization of most of these materials are included, together with notes on their specific applications, blending properties and other functions. This is the first text of its kind in the English language to give a complete picture of the perfumer's training and methods of working, as well as specifying the actual perfumery applications of the various odorants described and the approximate proportions in which such odorants are used. What exactly goes into the making of a fine quality 'fantasy' perfume, a good grade of gardenia perfume for soaps, or a cheap 'masking' perfume for boot polishes? And once the ingredients have been selected, how does one set about compounding and making the finished blend? These are only a few of the questions that reference to this book will answer.

Signs, Symptoms and Treatment of Certain Acute Intoxications, *by W. B. Deichmann, Ph.D., and H. W. Gerarde, M.D., 151 pp., pocket size, Charles C. Thomas. Publisher, Springfield, Ill., 2nd ed. 1958, cloth,* **$3.75.**

This condensed synopsis on poisons was designed for the use of Interns and Residents on emergency service at the Jackson Memorial Hospital. In this Second Edition, more than 400 new entries have been added. In addition, a numerical and alphabetical system of indexing will expedite use in emergencies.

The Effects Of Radiation On Materials, *Edited by J. J. Harwood, U. S. Office of Naval Research, 355 pp., Reinhold Publishing Corp., New York, (1958), cloth,* **$10.50.**

The changes that radiation produces in metals, ceramics, plastics and a wide variety of other materials are thoroughly covered in this new book. It contains the papers delivered at the radiation effects colloquium jointly sponsored by the Office of Naval Research and The Martin Company at Johns Hopkins University. Twelve leading authorities analyze the results of their own actual experiments with various materials. Solid state physicists classify fundamental and qualitative effects according to type. Metallurgists and chemical engineers make a quantitative evaluation of radiation effects on physical properties.

Automatic Control—Principles And Practice, *by Werner G. Holzbock, Chief Engineer, Askania Regulator Co., 258 pp., Reinhold Publishing Corp., New York, (1958),* **$7.50.**

This guide offers the practical results of scientific research on control systems in nonmathematical terms. The book begins with the dynamic behavior of control systems, including static requirements and adjustments for peak performance. Next, it covers mechanical and electrical components—measuring elements, controllers, and the specific part played by control valves. The final section describes the various control systems and their specific applications.

Biological Treatment Of Sewage And Industrial Wastes, *Vol. II (Anaerobic Digestion and Solids-Liquid Separation), Edited by Brother Joseph McCabe, F.S.C., and W. W. Eckenfelder, Jr. 330 pp., Reinhold Publishing Corp., New York, (1958), cloth,* **$11.50.**

This is the second volume in a series covering the entire field of biological waste treatment. Vol. II records the proceedings of the Second Conference on Bioligical Waste Treatment held at Manhattan College. It includes twenty-eight papers, contributed by leading authorities and arranged in logical sequence. Three separate sections cover: anaerobic treatment, sedimentation and flotation, vacuum filtration and sludge conditioning.

ADVERTISEMENT—*This entire page is a paid advertisement* *Prepared by U. S. Industrial Chemicals Co.*

U.S.I. CHEMICAL NEWS

Sept. ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1958

Aliphatic Dinitriles And Diamines Prepared From ISOSEBACIC® *Acid*

A new method of synthesizing aliphatic dinitriles and diamines — some of them believed to be new compositions of matter — is described in U.S. Patent 2,824,118, recently issued to U.S.I.

ISOSEBACIC acid is reacted with ammonia and/or urea or other nitrogen-containing compounds to form a mixture of C_{10} dinitriles. They are primarily sebaconitrile, α-ethylsubero-nitrile and α,α′-diethyladiponitrile.

The nitrile mixture can then be hydrogenated in the presence of ammonia and a catalyst to yield C_{10} diamines. They are a mixture of decamethylene diamine, 1,8-diamino-2-ethyloctane and 1,6-diamino-2,5-diethylhexane.

The dinitriles are considered valuable as chemical intermediates, and for solvents, lubricants, plasticizers and textile water repellants. The diamines should be useful in the synthesis of various types of polyamides — particularly fibers — and in plastics, rubbers, plasticizers, synthetic lubricants, polyurethanes and other products.

Nutritional Dystrophy Studies Show Lower Methionine in Blood

It has been reported that determinations of methionine in the blood of children with nutritional dystrophy average considerably below normal. In a study of whole blood from malnourished and normal boys, methionine content was found to average 73 mg. lower in the first group (331 ± 16 mg. as against 404 ± 16 mg. for the normal group). Determinations on the serum alone did not reveal a similar variation.

It was felt by the investigators that low values in the whole blood of the malnourished children might be due to hypochromic anemia prevalent in the group.

390 Million Nonfood Aerosols Sold in 1957

The Chemical Specialties Manufacturers Association estimates that 390 million nonfood aerosol units were produced in 1957, based on 339 million units reported in their survey and adjusted for companies not responding. Here's how the report looked, in millions of units:

Hair Sprays	94.4
Shaving Lather	50.9
Room Deodorants	41.9
Insect Sprays	41.5
Coatings	36.5
Colognes and Perfumes	17.9
Household Products Other Than Room Deodorants and Glass Cleaners	16.9
Personal Products Other Than Shaves, Hair Sprays, Colognes & Perfumes	12.3
Glass Cleaners	11.2
Miscellaneous	15.6

New Roles Seen for Ethanol in Medical & Pharmaceutical Fields

Recent Developments Include New Nerve Block Application, And Improvement of Ruminant Nutrition

Medical and biochemical research on ethyl alcohol — best known as a solvent — is constantly revealing new facets of its personality. It is evident that ethanol has *many* modes of action—physical, chemical and biological — that are important to the doctor, the nutritionist and the producer of pharmaceuticals.

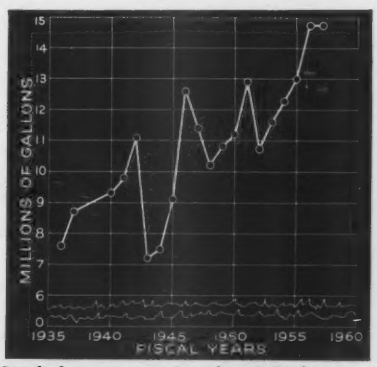
The practical use of ethanol in medicine as a nerve block agent is increasing. A few months ago a team of radiologists and neurosurgeons revealed a method of treating the painful facial *tic douloureux* by radiologically controlled injections of absolute alcohol. Forty-five patients so treated experienced immediate relief of symptoms, it was reported, although several had to be retreated, and one finally had to undergo the usual surgery.

New Function in Microbiology

Fermentation processes utilize several of ethanol's well-known modes of action—solvent, carbon source for yeast growth, and nutrient raw material for bacterial conversion into other chemicals.

And now, within the last year, a patented* novel use of ethanol in fermentation has begun to revolutionize the ruminant feed industry. It has been discovered that alcohol ingestion by cattle and sheep accelerates rumen microflora metabolism, by acting as a hydrogen donor. Ethanol has the unexpected property of maintaining a low oxidation-reduction potential in the rumen. This allows greater utilization of natural feeds rich in cellulose, and enables the micro-organisms in the rumen to make better use of nonprotein nitrogen materials such as urea. The microfloral cycle is

MORE



Graph shows consumption of specially denatured alcohol in pharmaceuticals and toiletries.

Sources: (a) STATISTICS ON THE USES OF SPECIALLY DENATURED ALCOHOL, Internal Revenue Service (data for 1936-1937 and 1940-1957). (b) ANNUAL REPORTS OF THE COMMISSIONER OF INTERNAL REVENUE, Internal Revenue Service (data for 1938 & 1939).

Heterocyclic, Homocyclic Systems Made by New Route

Research chemists have discovered that heterocyclics and homocyclics can be synthesized by an entirely new method. Potassium amide is reacted with the starting material to form a benzyne intermediate with a nucleophilic center. Nucleophilic means "seeking an electron-deficient group." In the presence of liquid ammonia, this center then adds intramolecularly to give a closed-ring compound.

Indane, indole, 2-phenylbenzothiazole, benzoxazole and phenothiazine have all been made by this new technique, and the research group believes it can be used to prepare many other hetero- and homocyclic compounds. Both five- and six-membered rings have been formed, all through intramolecular addition of nucleophilic sulfur, oxygen, nitrogen and carbon.

Stauffer's $TiCl_4$ Plant Bought by Mallory-Sharon

Stauffer Chemical Company's new 50 million pound-per-year titanium tetrachloride plant at Ashtabula, Ohio has been purchased by Mallory-Sharon Metals Corporation, which in turn is one-third owned by U.S.I. The new acquisition completes the company's integration of facilities for producing titanium — from ore to finished mill products.

New Method for Making Glycidyl Esters

The glycidyl esters — important as perfume and flavor ingredients, and in vinyl plasticizers, stabilizers and resin intermediates — can now be synthesized by using sodium hydride in oil as the condensation reagent in the Darzen condensation reaction.

When employed together with a ketone and a chloroacetate acid ester, NaH in oil is reported to give excellent yields in short reaction times at room temperature, with little or no side reaction.

NaH in oil is a 50% dispersion of 2-25 micron particle size crystals in an inert white mineral oil. It is handled as a solid which can be fed directly into reaction vessels either mechanically or by hand.

NaH in oil is prepared from dispersed sodium and hydrogen at 190-225°C. Its preparation is described in U.S.I.'s brochure "Sodium Dispersions," available on request.

Sept. ★ **U.S.I. CHEMICAL NEWS** ★ 1958

CONTINUED *Ethanol*

accelerated, thus increasing the daily rate of protein synthesis and cellulose digestion.

It is thought that this new role for ethanol may find application in other fermentation processes allied with the manufacture of pharmaceuticals and biologicals.

Ethanol Is a Surfactant

Ethyl alcohol is being used as an antifoam to relieve pulmonary edema in humans which sometimes occurs immediately after surgery. Under such conditions foaming in the lungs interferes with oxygenation. Inhalation of 95% alcohol vapor modifies the surface tension of the fluid and reduces the amount of foam in the lung. It is reported to produce immediate and dramatic recovery in most medical cases.

Protective Action in Body

Data is continually being compiled on the action of ethanol as a protective agent in the body. Organophosphate compounds, such as chemical warfare nerve gases and some agricultural insecticides, are known to act by inhibiting the formation of serum cholinesterase by the organism. It has recently been discovered, that ethanol protects against this inhibiting action.

Animal experiments have shown that preadministration of ethanol gives considerable protection against radiation sickness.

Role in Body Metabolism

In the human body, moderate doses of ethyl alcohol have been found to exert a protein-sparing action—improving protein storage and growth. And it has been reported that a positive nitrogen balance is more easily maintained in human convalescence when glucose and amino acids are supplemented with ethanol. Studies on animals show that ethanol also helps mobilize vitamin A from storage depots in the body.

The roles of ethyl alcohol as a vasodilator, as a stimulant, and as an antiseptic and disinfectant are well known, but should be mentioned here to round out the perspective on this U.S.I.-produced compound — one of the most versatile and valuable chemicals the medical and pharmaceutical fields have at their disposal today.

**U.S. Patent 2,808,332 — Anderson and Rapp*

U.S.I. Tank Car Domes Now Color-Coded for Product

The entire U.S.I. fleet of 900 tank cars is being repainted black on light gray, with the traditional U.S.I. oval in black and red. Inherent in the new design is a color-coding system that immediately identifies the type of service for which tank cars are used. Domes of the tank cars are painted any of the following identifying colors:

Solid Domes
- General Service (alcohol, etc.) ..... White
- Ethyl Ether ..... Light Blue
- Chlorine ..... Light Green
- Ammonia ..... Bright Yellow
- Sulphuric Acid ..... Black
- Phosphatic Fertilizer Solution ..... Bright Orange
- Nitrogen Fertilizer Solution .... Bright Red
- Caustic Soda Cars ..... Maroon
- Metallic Sodium ..... Gray

Black Domes with 4 Inch Color Stripes
- Ethyl Chloride ..... Black with Orange
- Olefin ..... Black with Yellow
- Miscellaneous gasoline, waste material ..... Black with Red

This new color-coding system provides U.S.I. with a double check — an at-a-glance opportunity to pick up errors before cars reach the loading rack.

Black, light gray and color-coded dome combine to give new look to U.S.I. tank car fleet. Overall design was chosen to give company identity, dome color to give product identity. Here a newly painted U.S.I. Alcohol tank car with identifying white dome is loaded at Tuscola, Ill.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

N-meta-tolyl phthalamic acid has been discovered to increase plant yields by reducing shock and stress of heat, cold, long rains and drought. Material has been test-sprayed on limas, cotton, cherry trees. **No. 1390**

New booklet on polyethylene film, coatings and molded items for packaging field illustrates advantages of material in terms of economy, sales appeal, protection of product and convenience. **No. 1391**

Zone-melting purifier for organic compounds now on market. Claimed to permit preparation of hyperpure solids in laboratory through slow travel of ring heater up along glass tube containing solid. Impurities concentrate at top. **No. 1392**

New insect repellent, diethyltoluamide, is said to be most effective ever developed for mosquitos, fleas, ticks, chiggers, deer flies. Product now being made with 95% minimum meta isomer content. **No. 1393**

Rare books on science and medicine which can be purchased are listed in new catalog which includes 258 works, alphabetically by author. Catalog covers only a portion of books available. Lists works printed from 1485 to 1929. **No. 1394**

A new aluminum hydroxide-magnesium carbonate co-precipitate dried gel is being sold which, it is claimed, will permit antacid producers to market tablets and powders with the same therapeutic value as the usual liquids. **No. 1395**

Series of ultrasonic units — mass-produced, low-cost, laboratory-size — has been developed for cleaning small delicate parts or assemblies, glassware, apparatus. Also suggested for biological, medical, chemical studies. **No. 1396**

2-Carbethoxycyclopentanone is now available commercially for pharmaceutical and fine chemical applications. Is precursor for many 2-substituted cyclopentanones. Enters into variety of reactions typical of beto-ketoesters. **No. 1397**

3-Sulfolene and some derivatives can now be obtained in research quantities. It is a controlled source of pure sulfur dioxide. As an intermediate, it reacts with chlorine, water, ammonia, alcohol and mercaptans. **No. 1398**

Odor-metering apparatus and techniques for its application to industrial odor-control problems are described in new 4-page brochure. Odor meter measures subjective impressions, must be operated by experienced personnel. **No. 1399**

PRODUCTS OF U.S.I.

ALCOHOLS

Ethyl Alcohol (Ethanol): Specially denatured — all regular and anhydrous formulas. Completely denatured — All regular formulas for industrial use, anti-freeze. Pure alcohol—USP 190°—Absolute, N.F., taxfree, taxpaid.

Proprietary Denatured Alcohol Solvents: SOLOX® — General-purpose. FILMEX® — Special, authorized for certain industries. ANSOL® M — Anhydrous, special blend for lacquers, resins, etc. ANSOL® PR—Anhydrous, special blend with higher ester content and solvency for lacquers, resins, etc.

OTHER PRODUCTS

Organic Solvents and Intermediates: Normal Butyl Alcohol, Amyl Alcohol, Fusel Oil, Ethyl Acetate, Normal Butyl Acetate, Diethyl Carbonate, DIATOL®, Diethyl Oxalate, Ethyl Ether, Acetone, Acetoacetanilide, Acetoacet-Ortho-Chloranilide, Acetoacet-Ortho-Toluidide, Ethyl Acetoacetate, Ethyl Benzoylacetate, Ethyl Chloroformate, Ethylene, Ethyl Sodium Oxalacetate, Sodium Ethylate, ISOSEBACIC® Acid, Sebacic Acid, Urethan U.S.P. (Ethyl Carbamate), Riboflavin U.S.P., Pelargonic Acid, and 2-Ethyl Heptanoic Acid.

PETROTHENE® Polyethylene Resins

Pharmaceutical Products: DL-Methionine, N-Acetyl-DL-Methionine, Urethan USP, Riboflavin USP, Intermediates.

Heavy Chemicals: Anhydrous Ammonia, Ammonium Nitrate, Nitric Acid, Nitrogen Fertilizer Solutions, Phosphatic Fertilizer Solution, Sulfuric Acid, Caustic Soda, Chlorine, Metallic Sodium, Sodium Peroxide, Sodium Sulfite, Sodium Sulfate.

Animal Feed Products: Antibiotic Feed Supplements, BHT Products (Antioxidant), Calcium Pantothenate, Choline Chloride, CURBAY B-G®, Special Liquid CURBAY, VACATONE®, Menadione (Vitamin K_3), DL-Methionine, MOREA® Premix, Niacin USP, Riboflavin Products, Special Mixes, U.S.I. Permadry, Vitamin B_{12} Feed Supplements, Vitamin D_3, Vitamin E Products, Vitamin E and BHT Products.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corporation
99 Park Avenue, New York 16, N. Y.

U.S.I. SALES OFFICES

Atlanta • Baltimore • Boston • Buffalo • Chicago • Cincinnati
Cleveland • Dallas • Detroit • Houston • Indianapolis • Kansas City, Mo.
Los Angeles • Louisville • Minneapolis • Nashville • New Orleans
New York • Philadelphia • Pittsburgh • Portland, Ore. • St. Louis
Salt Lake City • San Francisco • Seattle

(*Continued from page 368*)

groups present in Ricilan A (hydroxyl number, 117) and Ricilan B (hydroxyl number, 92) to form Ricilan C (hydroxyl number, 2) is claimed to increase the hydrophobic and penetration effects of the Ricilans[17]. While this material is liquid, it is a true wax.

The unsaturation present in the ricinoleic portion of the polymeric ester is claimed to increase the degree of penetration, solubility, plasticizing effects and substantivity of the esters present[17]. It is recommended for use in lipsticks, aerosols, hair products, silicone formulations, and other cosmetic and pharmaceutical emulsions.

4. *Solulan 97 and 98* (American Cholesterol). Acetylated ethylene oxide derivatives of lanolin alcohols and hydroxy esters. Solulan 97 contains 9 moles of ethylene oxide, and Solulan 98 contains 11 moles of ethylene oxide.

   Solulan 97 is completely acetylated (hydroxyl number, 3) and is usually preferred for preparations of high alcohol content. *Solulan 98* is partially acetylated (hydroxyl number, 64) and is very soluble in aqueous and weakly alcoholic preparations.

   The *Solulans* are active solubilizers for lanolin and its water-insoluble derivatives, mineral oil, and perfume oils, in water. A detailed study of the solubilizing properties of the Solulans for many hydrophobic materials has been presented by Conrad and co-workers[18].

5. *Lipocerina* (Esperis). An acetylated derivative of hydrogenated lanolin.

Organic acid esters

1. *Polylan* (American Cholesterol). A liquid wax ester of lanolin alcohols and linoleic acid[19]. This derivative is stated to incorporate the beneficial effects of the essential unsaturated fatty acids with the softening, protective, and conditioning properties of lanolin[19]. It is resistant to oxidative changes and is soluble in mineral oil, castor oil, alkylolamides and Silicone Fluid #555.
2. *Ricilan A and B* (American Cholesterol). A viscous liquid poly-ester of lanolin alcohols and ricinoleic acid, which could include such components as "sterol ricinoleate", aliphatic alcohol ricinoleates, dihydric alcohol ricinoleate, as well as ricinoleic esters of these hydroxy mono-esters to form poly-ester derivatives.
3. *Sucrolan* (American Cholesterol). A liquid ester of a keto sugar acid and a lanolin alcohol fraction[20]. It is soluble in alcohol, mineral oil, vegetable oil, and insoluble in water. It has a characteristic sweet caramelized odor, and is recommended for hair grooms, lipsticks, and emulsions of all types[20].
4. *Lanoscreen* (American Cholesterol). The p-aminobenzoate ester of selected lanolin alcohols[21], which combines lanolin emolliency and sunscreen activity. This derivative is reported to have excellent absorption characteristics at 2900-3200 Angstrom Units, and is recommended for use at 2 per cent concentration. Its compatibility with human sebum causes a persistent film to be left on the skin[21].

Isopropanol esters

1. *Isopropylan* (Robinson Wagner). Isopropyl esters of lanolin fatty acids in a vehicle of lanolin and liquid lanolin alcohols. They are produced by partial trans-esterification of lanolin with isopropyl alcohol.
2. *Crestalan* (Croda). An isopropanol-lanolin esterification composition, containing 50 per cent lanolin.
3. *Amerchol Isopropyl Lanolate* (American Cholesterol). A 100 per cent active isopropyl ester of the hydroxy, normal, and branched-chain fatty acids of lanolin[22]. It is a pale yellow, non-tacky, semi-solid which liquefies on contact with the skin. It is reported to be an extremely stable ester with strong hydrophilic characteristics. This derivative is recommended in all types of cosmetics and pharmaceuticals for emollience, gloss, spreading, penetration, conditioning, protective film, grooming, superfatting, and the stabilization of O/W and W/O emulsions[22].
4. *Ethylan* (Robinson Wagner). A reaction product of lanolin and isopropanol, in which isopropyl lanolic acid esters serve as the vehicle for the unreacted lanolin content. It differs from the Isopropylans chemically in that its esters have a lower molecular weight and contains a greater percentage of hydroxy acids.

G. Ethylene Oxide Derivatives

Ethers

1. *Solulan 16* (American Cholesterol). This new type of derivative is a polyoxyethylene ether of selected lanolin alcohols[23]. It is a 100 per cent active water and alcohol soluble emulsifier, solubilizer, and emollient, and reported to be an effective softening and conditioning agent. Its water solubility and general properties are achieved by an optimum quantity of ethylene oxide (16 moles, which corresponds to a molecular weight of about 700).

It is recommended for all cosmetic and and pharmaceutical emulsions, shampoos, aerosols, aqueous-alcoholic preparations, hair wave and hair dye preparations, and antiperspirants. It is reported to be an effective solubilizer for lanolin, oil-soluble lanolin derivatives, mineral and vegetable oils, perfumes, vitamins, and antiseptics[18].

2. *Ethoxylan 225* (N.I. Malmstrom). This new derivative consists of ethoxylated lanolin alcohols, soluble in 95 per cent ethanol and water. It is recommended for aerosol type products.
3. *Lanidrol* (Esperis). A derivative prepared by the ethoxylation of hydrogenated lanolin[24]. It is soluble in water and in diluted alcohol. The derivative is recommended for use as a solvent and effective fixative for perfume oils in soaps as well as other cosmetic preparations[24].

Ether-Esters

1. *Solulan 97 and 98* (American Cholesterol). *Solulan 97* is the completely acetylated ethylene oxide (9 moles) derivative of lanolin alcohols and hydroxy esters. *Solulan 98* is the partially acetylated ethylene oxide (11 moles) derivative of lanolin alcohols and hydroxy esters. See discussion of these derivatives under acetate esters (F-4).

   The following nine derivatives are a series of polyoxyethylene lanolins of varying ethylene oxide polymer chain length. See original article[1] for detailed descriptions of the first four products.
2. *Lanogel* (Robinson Wagner). Ethoxylated lanolin
3. *Ethoxylan 50 and 100* (N.I. Malmstrom) Ethoxylated lanolin
4. *Atlas G-1790* (Atlas Powder Co.) Ethoxylated lanolin
5. *Atlas G-1425, G-1441, G-1471* (Atlas Powder Co.). These derivatives are a series of hydrophilic polyoxyethylene sorbitol lanolins, and are described as alcoholysis products of lanolin and polyoxyethylene ethers of sorbitol.
6. *Solan* (Croda). Ethoxylated lanolin.
7. *Lan-Aqua-Sol* (Fanning Chem. Corp.). A water and alcohol soluble ethoxylated lanolin. Type 50 is a 50 per cent active aqueous gel, Type 100 is anhydrous.
8. *Lantox* (Lanaetex Products). A water and alcohol soluble ethoxylated lanolin. *Lantox 55* is 50 per cent active and *Lantox 110* is the anhydrous form.
9. *Lanfrax WS 55* (Malmstrom Chem.). This derivative is ethoxylated Lanfrax. It is water soluble and has a high melting point.
10. *Water-Soluble Lanolin* (Westbrook Lanolin)

H. Hydrogenated

1. *Hydrolan* (Esperis)

I. Solutions, Suspensions, Extracts

1. *Liquilan* (Robinson Wagner). A clear mineral oil solution of about 33 per cent liquid lanolin esters.
2. *Lanosol* (Robinson Wagner). A colloidal suspension of 60 per cent lanolin in a lanolin derivative ester vehicle.
3. *Amerchol L-101* (American Cholesterol). A mineral oil extract of selected surface-active lanolin sterols and higher alcohols.
4. *Lanolin solutions*

   See original article[1] for patented products.
5. *Nimco Liquid Nimlesterol* (N.I. Malmstrom). A liquid cholesterol emulsifier containing free cholesterol and its isomers. It is a non-ionic surfactant, soluble in oil and dispersible in water.

J. Lanolin Absorption Bases

1. *Alcolan* (Robinson Wagner)
2. *Amerchol Bases* (American Cholesterol)
3. *Nimco Cholesterol Bases* (N.I. Malmstrom)
4. *Protegin X* (Goldschmidt)
5. *Iso-Lan* (Goldschmidt)
6. *Isocreme* (Croda)
7. *Cremba* (Croda)
8. *Hydrophil* (Bopf-Whittam)
9. *Aquaphor* (Duke Laboratories)
10. *Eucerin* (Duke Laboratories)
11. *Sorbotex* (Van Dyk)
12. *Falba* (Pfaltz and Bauer)
13. *Fanning Absorption Base* (Fanning Chemical)
14. *Morningstar Absorption Base* (Morningstar-Paisley)
15. *USP Hydrophilic Petrolatum* (15th Edison)
16. *British Pharmacopeia Absorption Base* (6th Addendun)
17. *Delan C-10* (Laneatex Products)
18. *Aquabase*

    A cholesterol absorption base, differing from most products in that it contains a vegetable oil, consisting of 3 per cent cholesterol, 3 per cent cottonseed oil, and 94 per cent petrolatum[25, 26].

K. Special Lanolin

1. *Hychol* (Robinson Wagner)
2. *Nimco Super Lanolin* (N.I. Malmstrom).

V. Suppliers

American Cholesterol Products, Amerchol Park, Edison, New Jersey

American Lanolin Corp., 13 Railroad Street,

(*Continued on page 374*)

Trade Literature

Stainless Steel

A completely revised 40-page booklet on the use of stainless steel in the chemical industry is available from Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa. The booklet contains special sections on the process industries, the plastics industry, and others.

Atomic Models

Ten new atomic models for constructing organic metal chelate molecular models are described in a new six-page, five-color bulletin, 1a58, available from Arthur S. LaPine and Company, 6001 South Knox Avenue, Chicago 29. The bulletin includes discussion of metal chelate bonding, dimensions and valence angles of models, and examples of their use in metal chelate compound models. A separate bulletin on 30 original models in this Leybold line of atom models according to Stuart and Briegleb is also available.

Dow Polyols

The Dow Chemical Company, Midland, Michigan, has issued a 24-page revised edition of its booklet, Choosing the Right Polyglycol. Among the polyglycols, or polyols as Dow calls them, described are polyethylene glycols, polypropylene glycols, polybutylene glycols, polyepichlorohydrins, polystyrene glycols, and miscellaneous polyglycols, including five new trihydroxy polypropylene glycols.

Millipore Filters

The Millipore Filter Corporation, 36 Pleasant Street, Watertown, 72, Mass., has issued its 1958 supplement which contains information on two new, stainless steel, high volume filter holders which use Millipore's nylon-reinforced membrane filter material called Microweb. Bulk filtration to 0.45 micron is possible for critical liquids and gases, including pharmaceuticals and virus suspensions.

Borohydrides

A new 34-page manual of techniques covering the properties, reactions, and handling requirements of sodium and potassium borohydrides is available from Metal Hydrides, Inc., Congress St., Beverly, Mass.

Packaging Machinery

Container Equipment Corporation, 78 Locust Avenue, Bloomfield, N. J., has available a 16-page booklet describing its automatic cartoner, autobucket feed cartoner, and carton matic packaging machine, automatic glue sealing machine. Four-page brochures on the individual machines are also available containing illustrations and diagrams of the machines as to their various uses, specifications, and other statistics.

Suntan Bulletin

Atlas Powder Company, Wilmington 99, Delaware, has issued a three-page bulletin entitled Formulating Guide for Suntan Preparations. Discussed are clear lotions, O/W milky lotions, W/O milky lotions, O/W soft creams, preservatives, and polyethylene packaging.

WANTED

New Ideas For Drug Products For O-T-C Sale

You will receive cash for all new ideas accepted and used—plus a continuing income for any product marketed over-the-counter on a national scale. This offer is directed to people with a medical or technical knowledge of pharmaceuticals. Please read the conditions below carefully.

* * * *

We represent clients whose standing and reputation are well known to the publishers of this magazine. All correspondence will be held in strict confidence. *Please do not send in your product idea until you have first mailed the coupon below for the "Official Form" and full details.*

* * * *

We believe that the only new drug products likely to succeed today are those containing a new ingredient or feature *built in*—something that will support new claims. What's more, we believe no one man or staff of men have a monopoly on ideas for new or improved products.

That is why we are addressing this advertisement especially to people with pharmaceutical training.

WHAT WE ARE LOOKING FOR

Very likely you have ideas for new products. They may be what we're searching for—ideas for improved products in the public interest whose label claims can be cleared with the Food and Drug Administration.

You may know of or have drugs having acceptance in ethicals—ones that are suitable for repackaging and relabelling and under a new name would have sales advantage over present over-the-counter products.

If your idea is accepted and used you will be paid cash immediately. If the product based on your idea is finally marketed on a national scale, you will receive a continuing income.

Send For Full Information

If you wish to know more about this proposition, simply fill in and mail the coupon today. In your own interest and in ours, please *do not send in your idea* until you have read the entire offer carefully. All correspondence will be held in *strict confidence*. It may pay you to investigate. We cannot pay or be responsible for ideas sent to us on other than the Official Form, which will be sent in answer to your request.

CONFIDENTIAL COUPON

Send this request for information to:

MARKETING COUNSELLORS
COMMUNITY OPINION, INC.
34 East Fifty-First Street
New York 22, New York

Name .....

Address .....

City ..... State .....

Occupation or position: .....

.....

*Business Connection: .....

.....

(*not necessary to answer unless you wish)

(*Continued from page 372*)

Laurence, Mass.
Armour Laboratories, 4 Coates Street, East Paterson, New Jersey
Atlas Powder Co., Wilmington 99, Delaware
Bopf-Whittam Corp., 1135 Elizabeth Avenue W., Linden, New Jersey
Croda, 15 East 26th Street, New York 10, N. Y.
Croda, Ltd., Cowick Hall, Snaith, Goole, Yorkshire, England
Duke Laboratories, Duke Place, South Norwalk, Conn.
Esperis Co., Via Ambrogio Binda, 29, Milan, Italy
Fanning Chem. Corp., 352 Doremus Avenue, Newark 5, New Jersey
Goldschmidt Chem. Corp., 153 Waverly Place, New York 14, N. Y.
Hekman-Meeter Co., 326 Bond Avenue, N.W., Grand Rapids 2, Michigan
Lanaetex Products Inc., 151 Third Avenue, Elizabeth 1, New Jersey
N.I. Malmstrom Co., 147 Lombardy Street, Brooklyn 22, N. Y.
Malmstrom Chem. Corp., 259 Parkhurst Street, Newark 5, New Jersey
Morningstar-Paisley Inc., 639 West 51st Street, New York 19, N. Y.
M. W. Parsons-Plymouth, 59 Beekman Street, New York 38, N. Y.
Pfaltz and Bauer, 350-5th Avenue, New York 1, N. Y.
Robinson Wagner Co., 628 Waverly Avenue, Mamaroneck, New York
D. S. van Schuppen Co., Veenendaal, Holland (Hekman-Meeter Co., U. S. Distributor)
Van Dyk Co., Belleville 9, New Jersey
Westbrook Lanolin Co., Daisy Bank, Duckworth Lane, Bradford 9, Yorkshire, England
Wilson Laboratories, 4221 Southwestern Avenue Boulevard, Chicago 9, Illinois

REFERENCES

1. Barnett, G.: Lanolin derivatives and modifications, ***Drug and Cosm. Ind.***, Part I, **80:** 610 (May 1957); Part II, **80;** 744 (June 1957).
2. Bertram, S. H.: The constitution of wool waxes, ***Amer. Perf.***, **55:** 115 (Feb. 1950); also in ***J. Amer. Oil Chem. Soc.***, **26:** 454 (1949).
3. Truter, E. V.: ***Wool Wax Chemistry and Technology***, Interscience Pub., New York (1956).
4. Wheatley, V. R.: Sebum: its chemistry and biochemistry, ***Amer. Perf.***, **68:** 37 (Oct. 1956).
5. Wheatley, V. R.: Present knowledge of the chemistry and biochemistry of sebum, ***Soap, Perf. and Cosmetics***, **29:** 181-184 (Feb. 1956).
6. Wheatley, V. R.: Some aspects of the nature and function of sebum, ***St. Bartholomew's Hospital J.***, (London), **57:** 5 (Jan. 1953).
7. Mac Kenna, R. M. B., Wheatley, V. R., and Wormall, A.: The composition of the surface skin fat ("sebum") from the human forearm, ***J. Invest. Dermatol.***, **15:** 33-47 (July 1950).
8. Frazier, C. N., and Blank, I. H.: ***A Formulary for External Therapy of the Skin***, Charles C. Thomas, Springfield, Ill., (1954), pp. 55-69.
9. Strianse, S. J.: "Hand Creams and Lotions", in Sagarin, E.: ***Cosmetics:Science and Technology***, Interscience Pub., New York, (1957), p. 148.
10. Butcher, E. O.: The effects of applications of various substances on the epidermis of the rat, ***J. Invest. Dermatol.***, **16:** 85-90 (Feb. 1951).
11. Butcher, E. O.: The penetration of fat and fatty acid into the skin of the rat, ***J. Invest. Dermatol.***, **21:** 43-48 (July 1953).
12. Harry, R. G.: Skin penetration, ***Brit. J. Dermatol. Syph.***, **53:** 65-82 (March 1941).
13. Mac Kee, G. M., Sulzberger, M. B., Herrmann, F., and Baer, R. L.: Histologic studies on percutaneous penetration with special references to the effect of vehicles, ***J. Invest. Dermatol.***, **6:** 43-61 (Feb. 1945).
14. Powers, D. H., and Fox, C.: A study of the effect of cosmetic ingredients, creams and lotions on the rate of moisture loss from the skin, ***Proc. Sci. Sec. TGA***, **No. 28:** 21-26 (Dec. 1957); also in ***Drug and Cosm. Ind.***, **82:** 32 (Jan. and Feb. 1958).
15. Catalog of Westbrook Lanolin Co., Bradford 9, England.
16. Liquid Lanolin 60 Brochure, Westbrook Lanolin Co., Bradford 9, England.
17. Ricilan Data Sheet, American Cholesterol Products, Amerchol Park, Edison, New Jersey.
18. Conrad, L. I., Motiuk, K., and Maso, H. F.: Solubilization by means of lanolin derivatives, ***Proc. Sci. Sec. TGA***, **No. 29:** 14-18 (June 1958); also in ***Drug and Cosm. Ind.***, **83:** 160 (Aug. 1958).
19. Polylan Technical Bulletin, American Cholesterol Products, Amerchol Park, Edison, New Jersey.
20. Sucrolan Technical Bulletin, American Cholesterol Products, Edison, New Jersey.
21. Lanoscreen Technical Bulletin, American Cholesterol Products, Edison, New Jersey.
22. Amerchol Isopropyl Lanolate Technical Bulletin, American Cholesterol Products, Edison, New Jersey.
23. Solulan 16 Technical Bulletin, American Cholesterol Products, Edison, New Jersey.
24. Lanidrol Data Sheet, Esperis Co., Milan, Italy.
25. Cook, E. F., and Martin, E. W., in ***Remington's Practice of Pharmacy***, 10th Ed., Mack Pub. Co., Easton, Pa., (1951), pp. 297-8 and 1472-5.
26. Ehrenstein, E.: Modern concepts for the preparation of ointment bases, ***Amer. J. Pharmacy***, **122:** 208-222 (June 1950).

SUPPLEMENTARY REFERENCES

27. Conrad, L. I.: Emulsifying properties of lanolin derivatives, ***Amer. Perf.***, **71:** 70-77 (June 1958).
28. de Navarre, M. G.: Newer formulation containing lanolin specialties, ***Amer. Perf.***, **71:** 78-84 (June 1958).
29. Colbert, I.: Lanolin and its forward look, ***Amer. Perf.***, **70:** 41 (July 1957).
30. Putney, B. F., and Calvo, R.: The spectrophotometric determination of sterols in wool fat, ***J. Amer., Ph. Assoc., Sci. Ed.***, **47:** 205 (March 1958).
31. Foldes, F. F., and Wilson, B. C.: Determination of cholesterol, ***Anal. Chem.***, **22:** 1210-13 (Sept. 1950).
32. Janecke, H. and Senft, G.: Suitability of antioxidants for the stabilization of pharmaceuticals, Part III. Wool fat and woolfat alcohols, ***Arch. Pharm.***, **290:** 472-8 (1957). Reviewed in ***Chem. Abs.***, **52:** 3255 (Feb. 25, 1958).
33. Tchen, T. T., and Bloch, K.: Conversion of squalene to lanosterol in vitro. ***J. Biol. Chem.***, **226:** 921-930 (1957). Reviewed in ***Chem. Abs.***, **51:** 15660-61 (Oct. 25, 1957).
34. Lanolin purification, Italian Patent No. 520,525 (March 22, 1955). Patent describes reduction of lanolin, Reviewed in ***Chem. Abs.***, **51:** 17205 (Nov. 10, 1957).
35. Ethylene oxide condensate of wool fat, Italian Patent No. 538,158 (to Industrie Chimiche Barzaghi).
36. Evans, L. F., and Evans, W. E.: Recovery of wool wax, Australian Patent No. 158,035 and U. S. Patent No. 2,820,803. Reviewed in ***Chem. Abs.***, **52:** 1655 (Jan. 25, 1958).
37. Ault, W. C., Eisner, A., and Scanlan, J. T.: Production of lanolin alcohols, U. S. Patent 2,824,143 (Feb. 18, 1958).
38. Miyakawa, T., Shima, H., and Nomizu, H.; Wool grease. Hydrogenation of wool wax with various catalysts, ***Osaka Kogyo Gijutsu Shikenjo Kiho***, **7:** 207-214 (1956). Reviewed in ***Chem. Abs.***, **51:** 15973-4 (Oct. 25, 1957).
39. Radell, J., Eisner, A., and Donahue, E. T.: Isolation of a new fraction of wool wax with various catalysts, ***Osaka Kogyo Gijutsu Shikenjo*** 1954).

GLASS CONTAINER BUSINESS

(*Continued from page 311*)

There are other areas for improvement, one being the achievement of greater strength with less weight. The glass containers of 25 years ago weighed one and a half times as much as the same containers today, and today's are much stronger.

The recent announcement of that amazing new product, Pyroceram, a glass-derived substance said to be harder than carbon steel, lighter than aluminum and as strong as bronze, certainly constitutes a scientific break-through in our knowledge of the secrets of the strength of glass.

Coatings and other surface treatments applied to glass are also receiving intensive research attention, since they conserve, protect and renew the tremendous strength that lies in the surface of glass. They also facilitate faster handling in the filling lines.

So it is that, with 4,000 years of experience in glassmaking as an art and craft, and with about 40 years in mass production, we feel the glass container business has a solid foundation. We occupy an important segment of a dynamic packaging industry. But we are working constantly to extend the assets and limit the liabilities of glass containers, convinced that our greatest accomplishments lie in the future.

(*Continued from page 307*)

of the pink color. Such use has already been referred to in the advertising of Pepto-Bismol and it is readily understood that such color is associated with that particular product. The evidence discloses convincing proof of its wide acceptance and of the public association of a pink colored stomach remedy with Pepto-Bismol. It is no answer to say that other manufacturers had used the same color in the marketing of proprietary medicines intended for similar use. That others have trespassed does not relieve Sterling. The actions of others may not amount to noticeable damage to the plaintiff. The extent of the threat is the measure of Norwich's requirement to protect its product. In addition, it is not the color alone upon which Norwich relies for injunctive relief. Rather it is the intentional misappropriation of the non-functional attributes which help to make up the identity of its product. It is true that the pink color belongs in the public domain but it may not be used by a competitor in such a way as to act as a means of persuasion that it represents the product of another. . . .

"Pesamar's pink color was not adopted because of its alleged therapeutic value, its soothing qualities or its use in similar remedies. The undisputed evidence is that it was adopted for the sole reason that it was an attribute of Pepto-Bismol. This fact alone would seem indicative of the intention to trade upon the dress of a competitor and taken together with the exploiting of the pink color in its advertising would constitute unfair competition."

OBESITY

(*Continued from page 297*)

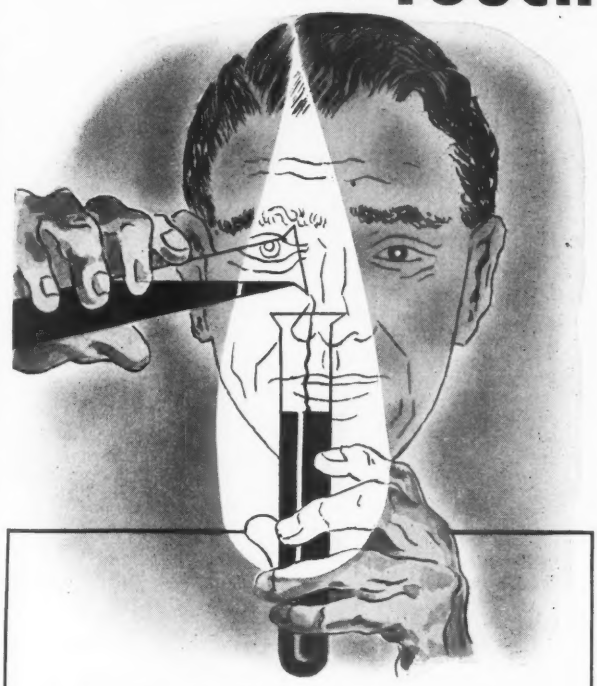
demonstrate alteration of the basal metabolic rate. There is little danger of addiction if taken properly under a physician's care. The side effects are relatively few. The most common are restlessness, insomnia and dry mouth. These side reactions have prompted many modifications of the amphetamine molecule. Some have been discarded after clinical trials either due to ineffectiveness or toxicity.

Preludin (Geigy) is 2-phenyl-3-methyl-2-tetrahydro-1,4-oxazin hydrochloride. Although closer to caffeine than amphetamine in chemical structure, its physiological action is qualitatively similar to the amphetamines. Its effect on the cardiovascular and central nervous system is weaker. The site of action appears to be in the mid-brain. As with the amphetamines, there appears to be no effect on the BMR, fasting blood levels, blood pressure and pulse rate. Little to no insomnia is reported.

Levonor (Nordmark) is amphetamine alginate. The chief claim, in addition to appetite suppression,

(*Continued on page 376*)

FOR THAT extra special TOUCH



THE PRIVATE LABEL with a *plus...*

Since 1921 . . . industry has turned to Helfrich first! And why not . . . Helfrich's dependability, service and manufacturing facilities make the very best in private labelling service available to distributors and manufacturers alike.

Whatever your packaging, and manufacturing needs are . . . see Helfrich:

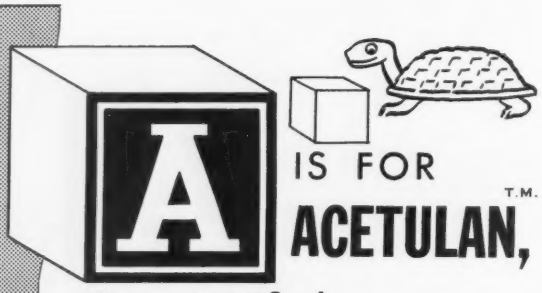
- Lipsticks, creme and dry rouge
- Lotions, shampoos, powders
- Deodorants, eyeshadows, mascara
- Colognes, perfumes, make-up

Helfrich's central midwest location slashes transportation costs. Eastern and western manufacturers alike rely on Helfrich as their midwest profit-building source. Take advantage of Helfrich's unique service.

HELFRICH LABORATORIES

WRITE . . . send us a description of your requirements. Complete information and estimates will be sent to you.

4707 WEST GRAND AVENUE
CHICAGO 39, ILLINOIS



Our scientific boon,
Best spreading emollient
This side of the moon.

ACETULAN is a 100% active, water thin lanolin derivative (viscosity 10 cps). It has phenomenal spreading and penetrating properties and imparts a unique soft waxy, emollient feel to skin and hair.

ACETULAN is composed of acetylated lanolin alcohols prepared by an exclusive process. It is soluble in alcohol, propellants, and in most oils. It acts as a solubilizer and plasticizer for many substances which are used in aerosols, emulsions, lotions, and make-up.

ACETULAN is hypo-allergenic and non-irritating.

SUGGESTED USES OF ACETULAN

Aerosols	Ointments and lotions
Emulsions	Rouge and lipsticks
Shampoos	Liquid make-up
Powders, talcs	Baby products
Nail polish removers	Hair preparations
Sun tan oils	Shaving preparations

Write today on your letterhead for technical literature and samples.

American Cholesterol Products
• INCORPORATED •

AMERCHOL PARK — EDISON, N. J.

is greater safety associated with lack of restlessness or insomnia side effects. Clinical reports appear to substantiate claims, especially with regard to lack of insomnia.

Synatan (Irwin-Neisler) contains d-amphetamine tannate. It is claimed to be a new protocolloid complex which releases amphetamine ions gradually and uniformly by dialysis.

Pipradol (alpha-2-piperidyl) benzhydrol hydrochloride) was introduced a few years ago as a central stimulant adjunct in dietary management. It was not successful and was withdrawn due to side effects of dizziness and nausea.

The patient usually must take about three tablets a day. He usually forgets one or more and consequently overeats. Longer acting preparations, or sustained release medication, found impetus in the obesity fields. These preparations usually depend on dissolution of variously sized enteric coated granules, making their respective drug loads available at different times. The release of drugs varies considerably from person to person and even hour to hour in the same person. The rate of release depends mainly on the digestive fluids of the gastrointestinal tract. Practically all the major manufacturers have a sustained release tablet of their product.

A newer approach to the sustained release of drugs uses anion and cation exchange resins that form reversible complexes with organic acids and bases. The dissociation of these complexes proceeds at a regular rate, dependent solely on the availability of ions. Since the total concentration of ions in gastrointestinal fluids varies within relatively narrow limits, the rate of exchange of ions for the drug is relatively constant. Biphetamine(Strasenburgh) is a resin-amphetamine complex. Approximately 60 per cent of the total amphetamine present in the complex is released in 8 hours, with the cycle essentially complete in 10 hours. Comparison tests against amphetamine tablets indicate a degree of superiority of the resin-complex, with lessened side effects. Sharp rises and declines in blood levels appear to be eliminated.

Anxiety is the major direct cause of overeating. Mild sedation is considered the most important adjuvant to appetite suppression. Most of the ethical drugs contain a barbiturate, analgesic, tranquilizer or antihistamine to curb restlessness. Where serious emotional disorders are present, the use of tranquilizers, such as chlorpromazine, reserpine or meprobamate, have helped keep the patient on a diet.

Thyroid, while still prescribed, has no place in routine therapy. Cytomel (1-triiodothyronine) is used, often with success, in refractory obese patients with metabolic insufficiency.

A major drawback to all appetite suppressants is that they cause a non-selective reduction in all food types, particularly in protein, with danger of serious malnutrition. Vitamin supplementation is useful in this situation, but by no means the final answer.

(*Continued from page 299*)

labor and a common faith, will risk, on the contrary, provoking serious discord.

Could we imagine, for example, in France a rival society to the French Society of Cosmetology separating from it to place itself under Anglo-American jurisdiction? Anyone wishing to take this responsibility must first affirm that the S.F.C. is not independent of other groups, that it is not representative, that it does not have the scientific spirit and that it never had it. They would have to deny the evidence.

The French Society of Cosmetology very much desires the creation of an International Federation. This it has proved by taking the first steps in organizing the first meeting in Paris and in presenting to it the first outline. Its representatives are always ready to discuss it cordially with their foreign colleagues. But it must be understood that they will not accept the denial of their position and no matter what happens will remain faithful to a past and present scientific position and will remain free from all encroachments either on a national or international level.

TABLET BINDERS

(*Continued from page 304*)

Some granular or crystalline salts or sugars can be tableted without additional binder.

Gelatin is always cooked and is usually used as a warm 10 per cent solution. The grade should be selected for the intended application.

Glucose, corn syrup, is available as a 43°Be syrup of good shelf life. It is diluted down as far as a 10 per cent solution before use. A spray-dried powder used by procedures 3 and 4 gives a granulation that is less hygroscopic than one made with the solution according to procedure 1.

Lactose, milk sugar, is a filler-binder like dextrose but is whiter and does not undergo discoloration. Although somewhat more expensive, it is the most widely used filler and binder in pharmaceutical compounding. Starch paste and acacia are often used along with lactose.

Molasses and malt syrup are like glucose and drug extracts in that they are strong binders but tend to produce hygroscopic granulations. The liquids are diluted for use and malt can be added according to methods 1, 2 and 4.

Starches are used as a cooked paste. The thick paste consists of one part starch to eight of water while a thin paste is made with 20 parts of water. These are heated in a double boiler or on a steam table until jelled.

Waxes are relatively poor binders but are often used to obtain special properties. They may be used as solutions in appropriate solvents, in melted form or as components of emulsions. Included are mineral and vegetable waxes, synthetics, stearic acid and me-

To Your Cosmetic Powders

Add "KIND-TO-THE-SKIN" Properties

with Horse Head U.S.P. Zinc Oxide

Your dollars work two ways when you use Zinc Oxide in your face and body powders . . . because Zinc Oxide imparts *both* cosmetic and pharmaceutical properties:

1. COSMETIC PROPERTIES

High Covering Power
Zinc oxide gives more covering power *per dollar* than any other high covering pigment used in cosmetic powders.

Deodorant
Zinc oxide neutralizes perspiration acids.

Sunburn-ray screen
Zinc oxide is opaque to ultraviolet light.

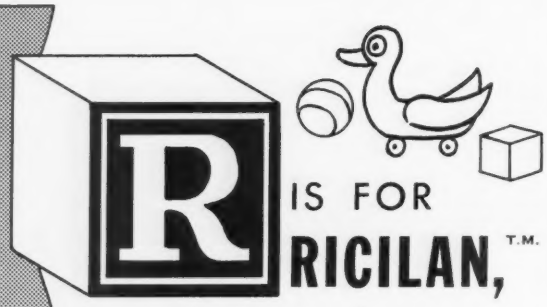
2. PHARMACEUTICAL PROPERTIES

Zinc oxide is widely used in dermatology in the form of zinc oxide ointment and calamine lotion.

It owes its popularity, according to one recognized authority,* to a combination of at least three qualities: it is non-toxic, protective and mildly astringent.

* *The Dispensatory of the United States of America, 1950 Edition*

THE NEW JERSEY ZINC COMPANY
FOUNDED 1848
160 FRONT STREET, NEW YORK 38, N. Y.
BOSTON · CHICAGO
CLEVELAND · OAKLAND · LOS ANGELES



R IS FOR RICILAN,™

From the castor bean,
A lanolin ester
Fit for a queen.

The RICILANS are 100% active, unsaturated polymeric derivatives of lanolin and castor oil. They are classed as true liquid waxes. The RICILANS are exceedingly stable, almost odorless viscous hydroxyesters which have balanced hydrophilic and hydrophobic groups. An acetylated form is available (Ricilan C) with increased hydrophobic characteristics. These unique products were developed by our Research Laboratories to provide cosmetic chemists with completely new tools for cosmetic research and formulation.

The RICILANS are unusual emollients, penetrants and spreading agents. They dissolve, plasticize and solubilize most cosmetic raw materials. We recommend that they be used in lipsticks for emollience, gloss, and color enhancement; in aerosols for the emollient films they impart; and in creams, lotions, and hair preparations for the unusual soft, waxy after-feel left on skin and hair.

Write today on your letterhead for technical literature and samples.

American Cholesterol Products
• INCORPORATED •

AMERCHOL PARK EDISON, N. J.

tallic stearates. Carbowax 6000 is used by procedures 1, 2 and 5. Waxes of low melting point, or those which are sticky, will cause the granulation to stick to the punch face, while harder waxes are often lubricating. Emulsions for the most part give trouble because of sticking to the punches.

Water, depending upon other ingredients present, is often a useful binder by itself. In some instances a better granulation will result if the moistened mass is allowed to stand for several hours before granulation.

A LOOK TO THE FUTURE

(*Continued from page 303*)

antiviral, antitumor, antifungal, and antiparasitic antibiotics.

A good example of the impact of new methodology on a separation and identification problem can be illustrated from our experiences with the new antibiotic streptovaricin. Streptovaricin was originally thought to be a single-component antibiotic. Six different types of butanol-water solvent systems failed to show more than a single component.

Research into new solvent systems finally permitted us to resolve this "single-component" antibiotic into five separate and distinct, though closely related, compounds.

The surprising thing is that no chemical or physical methods can discern differences among these five components. By ultraviolet absorption and even infrared spectrum, there are no interpretable differences, except in retrospect. And yet, they behave quite differently biologically. One component is the most active against the tubercle bacillus *in vitro*, although essentially inactive *in vivo*. Another component accounts for almost all of the *in vivo* antituberculosis activity in both mice and guinea pigs.

Without paper chromatography we would never have discovered the multiple nature of this antibiotic. And without paper chromatography we could not have made components analyses of the many samples of streptovaricin beers and preps vital to the elucidation of a new antibiotic's true nature.

Another methodology widely employed in the separation of antibiotics, and without which the data on *in vitro* and *in vivo* activities of the various streptovaricin components could perhaps not have been presented at this time, is the Craig counter-current distribution apparatus. With the use of proper solvents, a sample of streptovaricins was "pulled apart" or separated into its various components.

Three of the components are well separated after a two-hundred tube analysis. Components A and C are as yet unresolved and must be run on the thousand-tube machine to effect a clean separation.

One of the fascinating aspects of working with microbiological products is that we have not been

able to forecast the multiplicity, the amazing potencies, or the precise specificities of the new compounds we continue to discover. New methodologies, especially new analytical and preparative tools, are necessary.

A recent announcement by the British of a new microphoretic method permitting the analysis of samples weighing less than a million-billionths of a gram without using paper, jelly or gas will be followed with great interest. A whole new world of samples, especially from the plant and animal kingdoms, will be open to analysis.

The exciting introduction of the new spectroscopy embracing nuclear magnetic resonance and electron paramagnetic resonance for the more rapid elucidation of structure is a welcome addition to our stock of analytical tools.

Actually, we have done only half the job when we devise analytical tools capable of whetting our interest in new entities. The problems of preparing fairly large quantities of these new microbiological or biochemical products for broad biological testing must be solved at the same pace if we are to make real progress. I wonder how many good antibiotics may have been passed over, simply because the preparative tools were not in hand at the time the activity was discovered.

Without the preparation of clinically useful supplies of cortisone, the value of this once rare compound might never have been discovered. Nor would the whole field of clinically useful steroids have been opened.

Dr. Frank Strong, in his *Topics in Microbial Chemistry*, has pointed out the difficulties of preparing purified antibiotics or other microbial products in sufficient amounts for complete study. Working at the University of Wisconsin, whose facilities for preparing such items may well be the envy of many other schools, Dr. Strong was able to obtain no more than twenty grams of antimycin throughout his study. This is not an unfamiliar problem for people in this field, even in industrial laboratories.

If we are to move to higher ground, our analytical and our preparative tools must be both improved and increased in quantity. With these in hand, the number of new and biologically useful compounds we can provide to this and future generations will be a credit to us all.

This discussion of the future of antibiotics would not be complete were we to side-step the issue of how best to find new antibiotics or new biological activities of any type. After all, since 1948 major antibiotic discoveries have been less frequent and considerably more expensive in time and effort to accomplish. The three popular approaches, each with its own supporters, are: (1) the screening of synthetic chemicals; (2) the screening of cell products from microbial fermentations, and (3) the so-called rational approach embracing a preliminary unravelling of

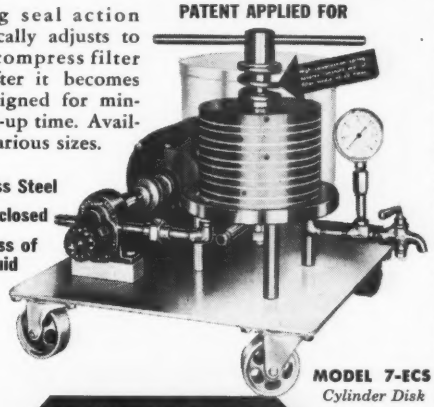
LOOK Now Constant Seal of Filter Media . . .

with New Ertel Cylinder Disc Filters

• Spring seal action automatically adjusts to further compress filter media after it becomes wet. Designed for minimum set-up time. Available in various sizes.

PATENT APPLIED FOR

▲ Stainless Steel
▲ Totally Enclosed
▲ No Loss of Liquid



MODEL 7-ECS
Cylinder Disk

Send for Bulletin 19-S

ERTEL
ENGINEERING CORP.
Liquid Handling Equipment Since 1932

KINGSTON 1 NEW YORK

Branch Office & Showroom, New York, N. Y.

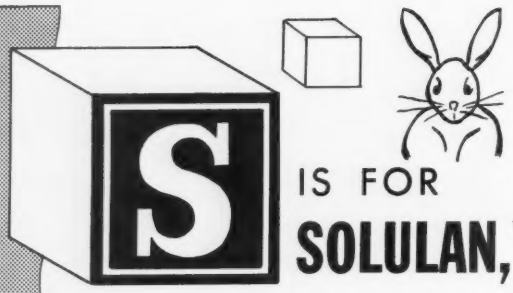
Huisking

PEDER DEVOLD
FINEST MEDICINAL
COD LIVER OIL U.S.P.
All potencies Vitamin Tested

P.D.

DEVOLKOD® VITAMIN OILS
(Fortified Cod Liver Oils for Veterinary Use)
DEVOLD VITAMIN A&D FEEDING OILS
DEVOLD VITAMIN A OILS
ABOVE OILS ARE "STABILIZED"
DEVOLDKOD NON-DEST. COD LIVER OIL U.S.P.
PEDER DEVOLD WHEAT GERM OIL
IMPORT EXPORT
PEDER DEVOLD OIL CO., DIV.
CLINTBROOK CHEMICAL CO., INC.

CHAS. L. HUISKING & CO., Inc.
417 FIFTH AVENUE, NEW YORK 16, N. Y.
Tel. : ORegon 9-8400 Cables: HUISKING, N.Y.
Plant & Warehouse: Lyndhurst, N. J.
Since 1910



S IS FOR SOLULAN,™

It answers a prayer,
A snap to dissolve,
Yet stays on the hair.

The SOLULANS are liquid, water-soluble lanolin derivatives, and much more! They form persistent emollient films which resist washing away. We have obtained this remarkable effect by giving these compounds a hydrophobic toe-hold in the shape of acetyl groups.

The SOLULANS are complex — saponification, extraction, purification, esterification, ethoxylation and acetylation are just a few of the steps involved; but these products are worth the effort. Try them and see for yourself.

The SOLULANS are completely soluble in alcohol and in water, and are powerful solubilizers for preparing water solutions of many insoluble substances such as perfumes, antiseptics, dyes, oils and pharmaceuticals.

SUGGESTED USES OF THE SOLULANS

Shampoos	Lotions and creams
Hair preparations	Topical pharmaceuticals
Alcoholic lotions	Aerosols
Shaving creams	Gels and sticks
Colognes	Anti-perspirants
Sunscreens	Deodorants
Insect repellents	Body rubs

Write today on your letterhead for technical literature and samples.

American Cholesterol Products
• INCORPORATED •

AMERCHOL PARK — EDISON, N. J.

the process followed by the synthesis of compounds to interfere with that process.

This discovery and development of the families of sulfonamides and nitrofurans testify to the success of the first approach. Subsequently and in rapid order, some twenty clinically useful antibiotics were discovered. All except penicillin and bacitracin were discovered by beer screening. This is perhaps the great lesson to be learned from the antibiotic era, that the simultaneous testing of the multitude of cell products in a fermentation beer by some sensitive and significant screening procedure, rationally designed and executed, is a most fruitful means of finding new activities. The fun of characterization and evaluation follows.

It is perhaps unfortunate and certainly deflating to man's ego that, if we were to know the mechanism by which penicillin or any other antibiotic carried out its phenomenal inhibitory function, even down to the last electron spin or active side-group, it would help us little in the discovery of either penicillin or the culture that produces it. We may find some solace in Francis Bacon who characterizes Celsus as one who early faced the facts of life: "Celsus . . . tells us that the experimental part of medicine was first discovered, and that afterwards men philosophized about it, and hunted for and assigned causes; and not by an inverse process that philosophy and the knowledge of causes led to the discovery and development of the experimental part. And therefore it was not strange that among the Egyptians, who rewarded inventors with divine honors and sacred rites, there were more images of brutes than of men; inasmuch as brutes by their natural instinct have produced many discoveries, whereas men by discussion and the conclusion of reason have given birth to few or none."

We all may hope that so stark an analysis no longer pertains to experimental medicine. But to such an extent as discovery must needs be empirical, we are well advised to make the best of it and apply all possible thought and rationalization to the more rapid evaluation and exploitation of these discoveries.

Pasteur thought clearly on this point. "Preconceived ideas," he wrote, "are like searchlights which illumine the path of the experimenter and serve him as a guide to interrogate nature. They become a danger only if he transforms them into fixed ideas—this is why I should like to see these profound words inscribed on the threshold of all the temples of science: 'The greatest derangement of the mind is to believe in something because one wishes it to be so.' "

ANTIBIOTIC ECONOMICS

(*Continued from page 291*)

maximum quantities, or of the buyer's purchase requirements or total requirements. These contracts have been made in at least the following products:

penicillin, streptomycin and dihydrostreptomycin, chloramphenicol, and tetracycline. The prices named on the contracts carry sharp discounts below the prices paid by other bulk customers of the seller.

Dosage forms are sold to wholesalers, retailers, hospitals, and Government agencies. The wholesaler's margin varies between 15 and 21 per cent of the price he charges the retailer. The margin between the published price to the retailer or hospital and the list price suggested by the manufacturer for resale to consumers is ordinarily 40 per cent of the consumer price. When a minimum resale price is named by the manufacturer, it is almost always 10 per cent below the listed retail price.

These published prices are modified in practice by a 2-per cent cash discount and by quantity discounts offered by various manufacturers. In addition, shipment of "free goods" has at times been a competitive tactic in the penicillin and the streptomycin markets. Manufacturers normally allow their customers full credit for return of "expired" dosage forms which have lost their potency through passage of time. Finally, some manufacturers guarantee customers' floor stocks against price decline for a stated period after purchase.

In 1945 amorphous sodium penicillin in bulk was quoted $6,000 and in 1947 at $2,100 per billion units. Crystalline sodium penicillin, which replaced amorphous in 1947, was first quoted at $2,500, but by 1956 was as low as $50, from which it increased to approximately $63 late in 1956. Potassium and procaine pencillin were quoted at $1,300 per billion units in 1948, and as low as $34.50 for potassium in 1955 and $47.50 for procaine in 1956. By the end of 1956 potassium had increased to $57.50 and procaine to about the same figure.

These sharp decreases resulted from improvements in production efficiency and reductions in cost, the benefits of which were passed on to purchasers through active price competition of numerous manufacturers. The great expansion of capacity in the Korean war, and competition after 1948 from newer antibiotics substitutable in many respects for penicillin and which could be taken orally, put further pressure on penicillin prices. The most severe competitive price reductions occurred in 1949 and 1952, especially the latter year.

The first price for penicillin dosage forms was $20 per 100,000 unit vial, paid by the Government in 1943. By August 1945, when flask-type production techniques had been replaced by deep-vat fermentation, the price is reported to have been below $1 per vial. In 1947 and 1948 the same dosage form was selling at 30 cents. Procaine penicillin, a much improved form, was introduced in 1948. A 3 million-unit vial, containing 10 doses, was offered to retailers by one of the companies in February 1948 at a price of $10. In October the price was reduced to $8 and in March 1949 to $6. Further decreases followed, the most

SIFTS 2 TO 10 TIMES FASTER
PRODUCES CLEANER SEPARATION
REQUIRES MINIMUM FLOOR SPACE
HANDLES ANY MATERIAL, ANY MESH

abbé TURBO SIFTER

With a screening area of only 131 sq. in., the Abbé #1 Turbo Sifter can produce up to 1000 lbs. of clean, sifted material per hour. It's easy to charge, operates quietly and dust-free, and is equally easy to clean. The #1 Sifter occupies less than 5 sq. ft. of floor space. Models are also available for sifting as little as 30 lbs. per hour, or as much as 6,000 lbs. per hour. Used with amazing results in product quality and cost savings by leading drug, chemical, cosmetic and other processing plants. *Write for Sifter Bulletin No. 65.*

Address Department 54

abbé ENGINEERING CO., 50 CHURCH ST. NEW YORK 7, N. Y.

Designers and Manufacturers of
Ball, Pebble and Jar Mills • Pulverizers • Sifters • Cutters • Mixers

CHARLES B. CHRYSTAL CBC MINERALS, CLAYS, COLORS 1897 NEW YORK

U.S.P.
IMPORTED
FRENCH PROCESS
GOLD SEAL
ZINC OXIDE

CHARLES B. CHRYSTAL CO., INC.
53 PARK PL., NEW YORK 7, N.Y.
PLANT-WAREHOUSE:
JERSEY CITY

severe price reductions being, as in bulk penicillin, in 1952. By 1956 the prices for a 3 million- unit vial of procaine penicillin in 3 commonly used forms were in the 56 to 66 cent range. From the 1943 price of the earliest type of penicillin to this 1956 price of procaine penicillin, there had been a 99.9-per cent decline.

While major manufacturers were quoting procaine penicillin in aqueous suspension at 56 cents for 3 million units, 2 smaller packagers were quoting 45 and 50 cents while 4 were quoting from 68 cents to $1.34.

All published prices to retailers for potassium and procaine penicillin in tablet form were equivalent in 1956 to 91 cents per gram or less; all corresponding prices for the more recently patented antibiotics discussed in this chapter were $1.12 per gram or more. Sellers of erythromycin have adopted the same prices for most dosage forms that already prevailed for the broad spectrum antibiotics. Benzathine penicillin and phenoxymethyl penicillin prices were in the same range.

The quoted prices of the broad spectrum antibiotics and erythromycin have not changed for several years; those of benzathine penicillin and phenoxymethyl penicillin have not changed since their introduction. None of these new products has been handled by outside packagers.

Bulk prices of streptomycin and dihydrostreptomycin have been identical with each other, and their trend has been similar to that of bulk penicillin prices.

The first broad spectrum antibiotic, American Cyanamid's Aureomycin (the generic name being chlortetracycline), was introduced at a price to retailers and hospitals of $15 for 16 capsules of 250 milligrams each on December 1, 1948. Two months later the price was reduced to $10. On March 25, 1949, Parke, Davis put Chloromycetin (chloramphenicol) on the market at the same price per capsule. On February 1, 1950, both companies reduced their prices to $8. Two months later, Chas. Pfizer & Co. introduced its Terramycin (oxytetracycline) at $8.40. On May 1, 1950, Aureomycin and Chloromycetin were reduced to $6, a price which Pfizer did not meet until November 1 of the same year. The next reduction, to $5.10, was initiated by Pfizer on September 27, 1951, and was met by both the others on October 1. This price remained unchanged thereafter.

The price of Aureomycin had thus decreased 66 per cent from 1948 to 1951, a period during which procaine, penicillin and streptomycin prices decreased by about the same amount, or 69 per cent. These latter prices kept on declining after 1951, whereas broad spectrum prices did not.

In 1951 Aureomycin accounted for 41.5 per cent, Chloromycetin for 36.5 per cent, and Terramycin for 22.0 per cent of the dollar sales of broad spectrum antibiotics for medicinal purposes. In 1956 they accounted for 12.1, 15.7, and 20.6 per cent of medicinal sales, respectively, while the new product, tetracycline, accounted for 51.6 per cent.

By contrast with the stability of broad spectrum prices quoted to distributors, hospitals, and consumers after 1951, prices charged the Armed Services Medical Procurement Agency continued to decline. Between 1950 and 1956, for example, prices it paid for Terramycin dropped 62 per cent as compared with the 39 per cent decline (all of it prior to October 1951) in Terramycin prices quoted to retailers.

In 1956 net sales of antibiotics from domestic production of Chas. Pfizer & Co. were equal to 39.4 per cent of its consolidated net sales (which includes some production in plants abroad). The percentages for the other 11 manufacturers ranged from 20.4 down to 4.6 per cent. Thus antibiotics constitute merely a segment of the pharmaceutical industry.

American Cyanamid led the industry in dollar sales of antibiotics in both 1950 and 1956, its percentage of the total increasing from 23.1 to 26.6 per cent. Pfizer was in second place, with 12.6 and 20.8 per cent. Lilly advanced from sixth (7.7 per cent) to third (9.5 per cent). Olin Mathieson was fourth in both years (9.0 and 9.2 per cent), while Parke, Davis dropped from third (10.4 per cent) to fifth (7.3 per cent).

TABLE 2

Consolidated net sales and assets and antibiotics net sales, by company: 1956

Assets and sales are shown in thousands of dollars

Name of company	Consolidated		Antibiotics	
	Assets	Net sales	Net sales	Percent of consolidated net sales
Total	2,395,324	2,434,899	337,718	13.9
Olin Mathieson	653,750	596,673	30,924	5.2
American Cyanamid	559,892	500,651	89,940	18.0
Lilly	195,646	181,530	31,918	17.6
American Home	169,484	295,483	21,986	7.4
Merck	168,017	172,432	16,424	9.5
Pfizer	152,583	178,362	70,334	39.4
Parke, Davis	139,262	134,093	24,637	18.4
Upjohn	107,851	111,013	22,598	20.4
Abbott	102,572	96,786	9,187	9.5
Commercial Solvents	74,580	58,745	3,504	6.0
Bristol-Myers	57,506	89,404	15,354	17.2
Penick	14,181	19,727	912	4.6

Sales of domestic production only.
Industry average.
Does not include sales of animal feed supplements and export sales.
Source: FTC data request, 1957, and published financial reports.

There have been considerable variations in the calculated ratios of profit before Federal taxes to net sales on antibiotics operations. The most profitable company in the 1950-56 period had the most stable ratio, ranging from a high of 53.7 to a low of 37.9 per cent. For all other companies the spread between the high and low years was much wider. Seven reported net losses on antibiotics operations in one or more years.

In 1956, this ratio of net profit before taxes to sales ranged between 1.8 and 40.5 per cent for the 9 companies submitting comparable data. Other ratios showed similar variations: cost of goods sold between 21.4 and 77.6 per cent; advertising and selling ex-

penses between 9.6 and 30.7 per cent; research costs between 3.5 and 10.5 per cent; and administrative and general expenses between 2.1 and 14.2 per cent.

If 1956 figures for all reporting companies are averaged, 39.0 cents of each dollar of net sales of antibiotic substances represented cost of goods sold, as against 44.4 cents in 1950. Selling and advertising expenses came to 21.6 cents (12.9 in 1950), research to 6.7 cents (4.4 in 1950), and administrative and general to 8.7 cents (7.6 in 1950). After account is taken of 3.2 cents of income from royalties and licenses and 1.2 cents in other costs, 26.0 cents remained in 1956 for net profit before Federal taxes. Reported net profit had been as low as 19.3 cents per dollar of sales in 1952 and as high as 34.5 cents in 1951.

For 1950, the company responses showed penicillin, the broad spectrum antibiotics, the streptomycins, and "all others" (consisting almost entirely of combinations, and bacitracin) accounting for 44.4, 35.4, 13.4, and 6.8 per cent, respectively, of total dollar sales of antibiotics exclusive of one specialty penicillin. In 1951 the broad spectrum group took over first place, and in 1955 it accounted for 56.1 per cent of the total. In 1956 it accounted for 50.9 per cent, and all penicillin, the streptomycins and "all others" (more than half of which now consisted of combination and erythromycin) for 19.0, 3.9, and 26.2 per cent, respectively.

The 1956 ratios of net operating profit to net sales were as follows: recently patented and higher priced penicillins, 43.4 per cent; broad spectrum group, 36.8 per cent; "all others," 17.2 per cent; older penicillins, a deficit of 5.6 per cent; streptomycins, a deficit of 41.4 per cent. In 1950 and 1951, just prior to the severe competitive price cutting of 1952, penicillin and the streptomycins had shown net operating profits equal to about 20 per cent of net sales.

Profit comparisons on the basis of sales were made for six antibiotics companies which furnished data on both their antibiotics and pharmaceutical operations. (1) Two companies showed higher antibiotics than pharmaceutical profit ratios each year, 2 others in 3 of the 7 years, and the 2 remaining companies in none of the years. (2) The 10 nonantibiotics companies showed higher profit ratios in 5 of the 7 years and approximately the same ratios in the other 2 years. (3) Nonpharmaceutical operations of the antibiotics companies were, as in the asset comparison also, less profitable than pharmaceutical operations.

The penicillin discoveries of Drs. Fleming, Chain, and Florey were not patented. Patents on the basic process improvements developed by scientists of the United States Department of Agriculture were licensed freely in accordance with United States Government policy. From these discoveries and the likewise unpatented improvements in the penicillin mold in 1943, a new branch of the pharmaceutical industry came into being.

Patent Office classification files, supplemented by

American

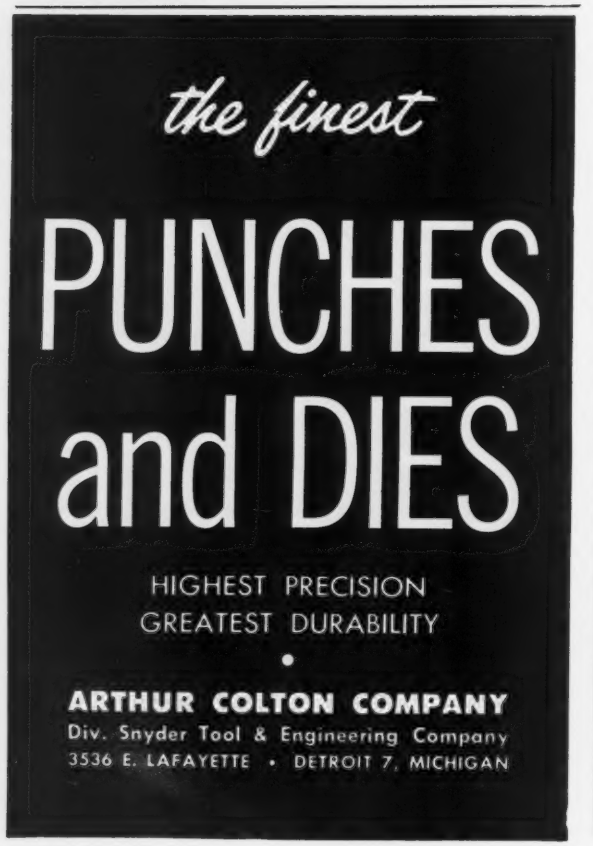
Aromatics

Perfume Compositions
Essential Oils
Aromatic Chemicals

24 East 21st Street, New York 10, N.Y.
GR7-6313

ENCAPSULATE
Your New Formulation!
One piece hermetically sealed soft gelatin capsules can well be the answer to —
Technical problems relative to your product's stability, dosage or usage form, packaging, and the like.
Increasing your sales by reason of their consumer attraction.
We have qualified personnel and extensive modern laboratory facilities available to implement the development and production of your special formula in soft gelatin capsules.
We sell capsules in bulk only to qualified manufacturers and distributors.
Your inquiry is invited.
Encapsulations Inc.
509 MADISON AVE., N. Y. 22, N. Y., PLaza 9-5880
GELATIN CAPSULE MANUFACTURERS

look for the symbol of the RETORT
YOUR GUARANTEE
OF MATCHLESS QUALITY,
PURITY, UNIFORMITY
Behind the symbol of the Retort stands three generations of family pride and "know-how" in Essential Aromatics, natural and synthetic flavors, perfumer's specialties. Made in the West's most modern plant. The Retort is your guide to dependability.
F. Ritter & Co.
Los Angeles 39, California
Branch Offices in Principal Cities



data submitted by 11 manufacturers in response to the first FTC data request, disclose that 671 antibiotics patents had been issued through September 1956. Of these, 576 were assigned to domestic corporations. The remaining 95 went to foreign corporations, individuals, the United States Government, and miscellaneous patentees such as research foundations.

The first significant product of company-financed research was streptomycin, discovered in 1943, marketed in 1946, and patented in 1948. The next important products of research were dihydrostreptomycin and procaine penicillin. Both of these were discovered in the mid-1940's, marketed in 1948, and patented in 1950.

Beginning in 1944 and 1945, several experimenters discovered that mixing penicillin with procaine (hitherto used as an anesthetic) yielded an antibiotic substance which would stay in the blood stream much longer than any then available form of penicillin. Fourteen companies, including Lilly, had been manufacturing this substance since 1948. Ten of these, and one not manufacturing in 1948, negotiated licenses with Lilly. By 1956, partly as a consequence of sharp price competition, the number of manufacturers of procaine penicillin had decreased to 7, although 2 others continued to sell out of stocks on hand.

Later developments, including public statements by company officers, made it plain that the antibiotics research programs instituted by the companies during and shortly after World War II did not have as their aim the discovery of drugs for which the patents would be licensed as widely as were, in fact, the three just reviewed. Each company was seeking exclusive products which would support profitable prices and thus yield wider profit margins than those which price cutting was to produce on these three.

Some of the most important patents that subsequently issued as a result of these research programs, the companies whose scientists received each patent, and the dates of issuance (which were usually later than the date of first commercial production), were:

Chloramphenicol	American Cyanamid	1949
Chloramphenicol	Parke, Davis	1949
Oxytetracycline	Pfizer	1950
Phenoxymethyl penicillin (penicillin V)	Lilly	1951
Benzathine penicillin	American Home Products	1953
Erythromycin	Lilly	1953
Tetracycline	Pfizer	1955

The prices on these products have been considerably higher, when translated into per-gram equivalents, than those prevailing at the same time on the streptomycins and older forms of penicillin. The patentees either licensed no one or licensed not more than three other manufacturers, and the kind of price cutting that marked the earlier products has not, under these circumstances, developed.

Eleven major manufacturers were involved in 70 interference proceedings arising out of applications leading to issuance of patents through September

1956. Fifty interferences were settled by agreement —35 in penicillin, 6 in the streptomycins, 1 in tetracycline, and 8 in other products. The companies either agreed not to contest the decision of the Patent Office as to priority and invention, or settled the issue of priority among themselves and withdrew all the patent applications but one—with the prospective patentee pledged to license the other applicants at a stipulated royalty.

The tetracycline litigation grew out of the claimed discovery of this antibiotic at about the same time by scientists working in the laboratories of four companies. Two interferences were declared at the Patent Office. The first, between American Cyanamid and Pfizer, was terminated in February 1954 when Cyanamid conceded priority in conjunction with a cross-licensing agreement. The second involved Cyanamid, Bristol, and Pfizer—Cyanamid as a result of its purchase of the antibiotics division of Heyden Chemical Corp., which had pending a patent application on a chemical salt of tetracycline. In October 1954 this "salt" interference was dissolved by the patent examiner on the ground that the Heyden application had disclosed that tetracycline had been in fact prodced before the alleged dates of invention as a by-product of the manufacture of Cyanamid's chlortetracycline. On December 6, 1954, and February 25, 1955, Cyanamid and Bristol formally abandoned their claims. Pfizer had pushed its application, and received the patent on January 11, 1955.

Bristol had been manufacturing tetracycline since April 1954, and selling in bulk to Squibb (Olin Mathieson) and Upjohn for resale under their own labels. Immediately on receiving the product patent, Pfizer sued the three companies for infringement. They filed declaratory judgment actions in another jurisdiction claiming that the tetracycline patent was invalid both for the reason originally given by the examiner and because it had been allegedly obtained through misrepresentation.

In March 1956 the lawsuits were settled out of court. Bristol recognized Pfizer's patent, agreed to pay royalties, and licensed Pfizer, at its option, to use and pay royalties on a process patent which Bristol had received for direct fermentation of tetracycline. When Cyanamid had recognized the priority of Pfizer's claim in January 1954, it had agreed to pay royalties on all tetracycline it manufactured if Pfizer should obtain a patent, while Pfizer had agreed to pay royalties to Cyanamid on the chlortetracycline it necessarily manufactured and used (not sold) in the making of tetracycline. A third link in the final settlement had been forged in January 1955 when an infringement suit by Cyanamid against Bristol for manufacturing chloretetracycline in the process of making tetracycline had been withdrawn upon Bristol's agreement to pay Cyanamid (as it was later to agree to pay Pfizer) a royalty on all its sales of tetracycline. Finally, Pfizer's suits against Olin Mathieson

gane's®

DEHYDROACETATE-SODIUM

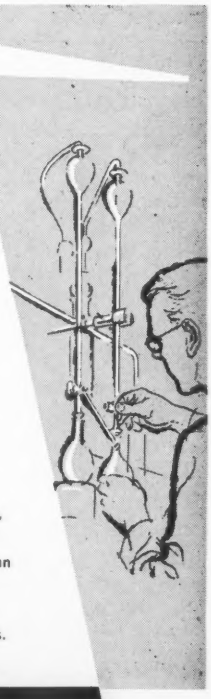
AMINOPHYLLINE
BARBITAL
BENZOCAINE
PABA — Na and K
PENTOBARBITAL, USP XV
PHENOBARBITAL
SECOBARBITAL
THEOPHYLLINE

WITH EVERY POUND . . . MORE GANE'S in QUALITY
Manufacturer of Fine Medicinal Chemicals
GANE'S CHEMICAL WORKS, INC.
535 Fifth Avenue, New York 17, N. Y. • YUkon 6-5780

PRIVATE FORMULA WORK

let us manufacture it for you

call on Gesell . . . for economical, dependable and confidential manufacturing of special items which do not fit into your setup. our complete service from product development to finish includes: manufacturing, filling, warehousing, packaging, storing and shipping-over 35 years in business . . . you can depend on Gesell to give you quality workmanship and prompt service due to the most modern and efficient production facilities.
consult us without obligation



R. Gesell Incorporated
200 W. Houston St. • New York, N. Y. • WAtkins 4-3870

(*Continued from page 385*)

and Upjohn and the actions of these companies against Pfizer were settled by Pfizer's granting them licenses to continue repackaging and selling tetracycline purchased in bulk from Bristol.

The conclusion of the whole proceedings was that the manufacture of tetracycline was restricted to the 3 companies which had made patent applications on the product, and its sale to these and 2 others. In 1956 American Cyanamid accounted for 55 per cent of the volume of output.

Trademarks and trade names are used extensively to designate the antibiotic products marketed by particular companies, and thus to establish lasting preferences in the minds of physicians and purchasers. Tetracycline, for example, is quoted and sold in the ethical drug markets as Achromycin, Tetracyn, Polycycline, Steclin, and Panmycin (by American Cyanamid, Pfizer, Bristol, Olin Mathieson, and Upjohn, respectively). ABBOTT, BRISTOL, and UPJOHN are examples of trade names, designating products of these companies.

In 1954 at least 550 trademarks and trade names were used by various sellers to designate over 100 different antibiotic preparations, and by 1956 there were 60 additional names for combinations alone.

Several of the antibiotics manufacturers have established minimum resale or "fair trade" prices for many of their trademarked products, under the provisions of State fair trade laws and Federal implementing legislation. The percentage markup on cost which these prices, so far as they are effective, protect for the retailer is generally 50 per cent. This means that the retailer's margin—if he purchases at the manufacturer's quoted price to retailers and sells at the fair trade price—is a third of the price paid by the consumer.

It has been estimated that consumer spending for all grades of antibiotics amounted to $575 million in 1953—a year in which the major manufacturers' sales fromtheir own production came to $244 million. The difference (so far as it is not due to errors of estimate) is in the cost of the services of finishing and packaging by others than original manufacturers, and in the overall cost of distribution.

Antibiotics represented an estimated 1.5 per cent of all prescriptions written in 1948, and 12.7 per cent in 1955. In 1952 and in every year since, more prescriptions have specified antibiotics than any of the other seven categories of ethical drugs. More than 50 new "antibiotics—sulfa and combinations" prescription specialties have been introduced annually.

The importance of antibiotics among the factors at work in reducing disease and death rates is illustrated by the declining number of reported cases in the United States of the group of illnesses whose bacteria can be controlled by their use. There were approximately 1.2 million such cases in both 1946 and 1947, 1.0 million in 1948, and beginning in 1951, less than 800,000 in each year. Antibiotics have unquestionably contributed to sharp reductions in the death rates from such important causes of death as tuberculosis and venereal diseases.

Antibiotics have proved particularly effective in saving the lives of children and young persons. The sheer economic value of these lives, measured by future productiveness, may be considered substantial.

A decline of several days in the average time spent by patients in hospitals is due in part to the use of antibiotics, although also to other factors such as changed medical practice.

PATENT THOUGHTS AND TRENDS

(*Continued from page 331*)

"Under the facts of this case I see no escape from the conclusion that plaintiffs are barred by file wrapper estoppel from invoking the doctrine of equivalents to sustain their charge that Colgate's altered product, using propane and isobutane as the propellant, infringes claim 16 and claim 19 of the Spitzer patent."

(3) Judicial estoppel: Colgate contended that the testimony and arguments of Carter at the trial were such that Carter is stopped from claiming that the mixture of isobutane and propane is the equivalent of the Freons. While the Judge did note certain statements which would seem to give substance to Colgate's contention, the Judge found that Carter's lawyers "did not at any time make an unequivocal statement to either of the courts that the claims of the patent are so limited as to exclude the hydrocarbons as equivalent propellant gases." Also, the Judge ruled that Colgate was not misled by reason of any statements made by Carter or its lawyers and ruled that none of the testimony or arguments offered on behalf of Carter at the trial and on appeal were sufficient to bar Carter's recourse to the doctrine of equivalents.

Patent misuse: Courts deny patentees relief if the latter have been guilty of patent misuse, that is, unclean hands. This refers to misconduct on the part of the patentee while the patent application was being prosecuted in the Patent Office or where he has made improper use of the patent after it has been issued.

Colgate contended that Carter should be denied relief because it indulged in an "oppressive licensing program." Colgate complained that Carter issued licenses with respect to products other than pressurized shaving creams. The court ruled that Carter had the right to do so.

Among the other complaints of Colgate was one that the license agreements required the licensee to acknowledge the validity of the patents and not to contest the same. The court ruled that this provision is unobjectionable and also overruled Colgate's other contentions with respect to patent misuse.

In summary, it will be seen that the decision of Judge Thomsen is a very important one. It imposes a financial charge against Colgate with respect to the 1,600,000 cans of Rapid Shave in the hands of Col-

gate's customers at the time of the injunction. The decision also appears to be a clear holding that the composition of the altered Colgate product does not come within the scope of the Spitzer et al. patent, on account of file wrapper estoppel. In this respect the decision marks a major victory for Colgate. However, as already pointed out, the decision leaves unsettled the question of whether Carter is entitled to enjoin the continued sale of the altered Rapid Shave cream of Colgate under the same name and advertising as the adjudicated product, and to recover damages therefor. Having in mind the rather considerable litigation between the parties up to date, about the only thing that is reasonably certain is that there will be more litigation between the parties.

RECENT PATENTS

2,813,906—Merck—Acetyl Methoxy Methyl Octahydronaphthalene

2,815,315—Union Chemique Belge (Belgium)—Analgesic and Antirheumatic Preparation

2,815,343—Dow—Polyoxyalkylene Derivatives of Phenothiazine

2,815,344—Carrol Dunham Smith Pharmacal Co.—Water Insoluble Polythionates

2,815,346—Burroughs Wellcome—6-Chloropurines

2,815,349—Nat. Research Dev. Corp. (England)—Anti-Thyroid Thioglyoxalones

2,815,353—J. Fried—Pregnenes

2,815,363—G. D. Searle—Alcoholic a-Hydroxyphenylacrylonitriles

2,815,379-80—Hoffmann-La Roche—Alicyclic Ketones

2,815,381-2 — Givaudan Corp. — Alkyl Substituted Hydrindacenones and Tetrahydronaphthindanones

2,820,045—Upjohn—α-Hydroxyalkyl Androstenes.

2,820,736-7—Chas. Pfizer—Steroids.

2,820,738—Geigy—Substituted 2-phenyl-Indan-1, 3-Dione.

2,820,739—Merck—Antitussive Compositions.

2,820,740—Benger Labs. (England)—Iron Therapeutic Compositions.

2,820,741—Abbott Labs.—Aluminum Aspirin Granulation and Method for making.

2,820,786—Shionogi & Co. (Japan)—Thiamine Carboxy Hydroxy Sulfophenyl Sulfophenylazopyrazolate.

2,820,789—Am. Home Products—Dibenzylethylenediamine-Penicillin V.

2,820,792-5—Am. Cyanamid—Thiadiazoline Sulfonamides.

2,820,797—Parke, Davis—Nitrophenyl Phthalimidopropanolal and Phthalimidoacetaldehyde Addition Compound.

2,820,814—Schering—Polyiodinated 5-Aminoisopthalic Acids, Salts and Esters.

2,820,817—McNeil Labs.—Oxygenated Indans.

2,821,527—Merck—Folic Acid Intermediates.

2,821,528—Merck—N-Acetyl-N-Formyl Pteroylglutamic Acid.

2,821,558A—Merck—Propionaldehyde Derivatives.

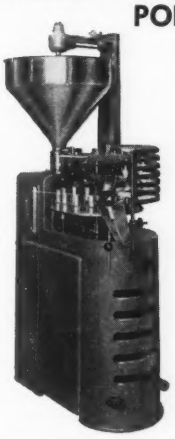
KALIX-DUPUY

AUTOMATIC TUBE FILLING, CLOSING & CRIMPING MACHINE

AVAILABLE with INTERCHANGEABLE HEADS for SEALING POLYETHYLENE & METAL TUBES

Simplicity ★ Lower Price

Immediate Delivery!



★ 120 Gross Daily—One Operator.
★ 15 Minutes to Change Size. Very low Change cost.
★ Quickly Cleaned — No Hose — Fills Tubes, Jars or Cans.
★ Accurate Fill—No drip—No smearing—No air.
★ Handles all metal and Polyethylene tubes. Model RV-7 from 3/8" to 1 1/2" diam. x 7 1/2" high. RV-10 from 1" to 2 1/2" diam. x 12" high.
★ Two-fold—Three-fold or Quadruple fold on RV-7. Two-fold or Three-fold on RV-10.
★ No tube—no fill. Coding jaws—Automatic Ejector.
★ Cap Tightener.
★ Stainless Steel Contact Parts.
★ Fully guaranteed — Replacement parts and service readily available.

WRITE FOR DESCRIPTIVE FOLDER AND PRICES

COMPLETE SERVICE and PARTS FROM STOCK

HARING EQUIPMENT Corp.

EXCLUSIVE KALIX-DUPUY DISTRIBUTOR

293 FRELINGHUYSEN AVE.
NEWARK 12, N. J. • TAlbot 4-0025

Get our

LATEST CATALOG

order direct

"Metalsmiths" Stainless Steel and Monel Utensils

METALSMITHS Utensils are built to the exacting needs of corrosion-resistant service in the process industries. Efficiently designed — made of correct metal analysis and weight — fabricated by latest techniques — backed by over 30 years' specialization in corrosion-resistant equipment.

Prompt Shipment — Anywhere

WRITE FOR LATEST CATALOG — PRICE LIST

METALSMITHS

568 White St., Orange, N. J.

Specialists in Corrosion-Resisting Equipment

2,822,312—Saul & Co.—Microbicidal Composition Material Impregnated Therewith and Method of Impregnation.

2,822,314—Smith, Kline & French Labs.—Therapeutic Antibiotic Preparation Containing Polymyxin, Neomycin and Gramicidin

2,822,316 — Schering (Germany) — Estrone Solutions Containing Ethyl Lactate and Castor Oil.

2,822,317—Smith, Kline & French Labs.—Aqueous Iron-Ascorbic Acid Preparation.

2,822,319—J. Monod (France)—Cultivation of Micro-Organisms.

2,822,365—Frankfurter Arzneimittefabrik—Procaine-8-Chlorotheorhyllinate.

2,822,369—Ethicon, Inc.—Esters of Diketostearic Acids.

2,822,380—Sterling Drug—Unsaturated D-Homosteroids.

2,822,381—G. D. Searle—3-Ozygenated 16-Hydroxy-D-Homopregnen-20-Ones.

2,822,391—Eprova Limited (Switzerland)—Aminoalkyloxyalkyl Ethers of Salicylamide.

2,822,407—Sterling Drug—Trihalomethyl Methylcyclohexanols.

2,823,158—Rohm & Haas—N-Cyanoethyl Carbazole For Treating Systemic Plant Diseases.

2,823,160-1—Whitmoyer Labs.—Anti-Coccidial Substituted Pyrimidines and Triazines.

2,823,162—Merck—Anti-Coccidial 4,4′-Dinitrocarbanilide Composition.

2,823,163—R. K. Thomas—Antivaginitis Composition.

2,823,164—Nat. Res. Dev. Corp. (England)—Tri-Iodo-Thyronine Compositions.

2,823,165—Aschaffenburger Zell. (Austria)—Compositions for Controlling Animal Parasites.

2,823,167—Vitarine Co.—Stable Vitamin B_{12}-Containing Solution.

2,823,168—Ethicon—Depilatory of Thioglycollate Salt in Gel Solution.

2,823,169—Reheis Co.—Substituted Aluminum Alcoholates.

2,823,171—Olin Mathieson—1-Dehydrotestololactones.

2,823,204—Labs. Gobey (France)—Voacanga Alkaloids.

2,823,213—British Drug Houses—Steroids.

2,824,041—Chas. Pfizer—Inducing Hypnosis by Unsaturated Teritary Carbinols.

2,824,042—W. G. Gibbonset al.—Composition for Preparation of Burow's Solution.

2,824,101—G. D. Searle—3-Anilino-2H,1,4-Benzothiazines.

2,824,102—G. D. Searle—Aminoalkyl-2H,1,4-Benzothiazin-3(4H)-Ones.

2,824,103—Ciba—1,3,5-Triazines.

2,824,106—C. H. Boehringer (Germany—Quaternary Tropeines.

2,824,110—DuPont—5-Hydroxy Pyrrolone-2.

2,824,111—Upjohn—Pyrrolidines.

2,824,132 — Merck — a-Methyl Methionine and Salts Thereof.

2,824,869—Bristol Labs.—Salt of Streptomycin and Phytic Acid.

2,824,871—Upjohn—Steroids.

2,824,872—Les Labs. Dausse (France)—Morpholino Phenyl Carbamates.

2,824,873—Badische A&S.F.—Pyridazones.

2,824,874—E. Schittler—Reserpic Acid Derivatives.

2,824,875—Sterling Drug—Piperidine-4-Carboxylates

2,824,877—Bristol Labs.—Benzyl-Penicilloate of Tetracycline.

2,824,882—G. D. Searle—16-Cyano-7-Oxopregnenolone.

2,824,894—Carlo Erba (Italy)—Hydroxyethyl-Phenoxybenzyl-Dichloroacetamide.

2,824,896 — Hoffmann-LaRoche — Dimentyl Nonanone and Trimethyl Unsaturated Alcohol.

2,827,415—May & Baker—Nitroso Pyrazoles.

2,827,416—Dow—Anti - Coccidial Dinitrophenylhydrazides of Lower Aliphatic Acids.

2,827,418—A. Buzas et al.—Theophyllines.

2,827,420—I. B. Wershaw—Metallic Acetate-Aluminum Sulfate Therapeutic Tablets.

2,827,453—Am. Cyanamid—Phthalimido Pentosides.

2,827,454—G. J. Nord—Chlorophyll Recovery.

2,827,457—May & Baker—Thiadiazole.

2,827,459—Soc. Usines Chim. Rhone-Poulenic—Piperazines.

2,827,460—Farbwerke Hoechst (Germany)—Diphenyl Amino-Propanols.

2,827,466—May & Baker—Bis-Quaternary Ammonium Salts of Amsonic Acid.

2,827,467—Farbwerke Hoechst (Germany)—4-Halogen-Amino-Alkylamino Trimethyl Benzenes.

2,827,477—U. of Michigan—Tertiary Amino Lower Alkyl Esters of Aryl Hydroxpropanoic Acids.

2,827,481-2—Hoffmann - LaRoche—Polyene Aldehydes Process.

2,828,206—A. Rosenberg—Stabilized Fat-Soluble Vitamins.

2,828,242—Upjohn—Oral Neomycin-Sulfa Composition.

2,828,243—Vick—Oxyethylated Lauryl Alcohol Steam Inhalation Composition.

2,828,244—Miles Labs.—Stabilized Diethylstilbestrol Diphosphate Solution.

2,828,245-6—Commercial Solvents—Viomycin and Bacitracin Processes.

2,828,306—Schering (Germany)—Stable Water Soluble Salts of Oestrone Sulfate.

2,828,309—Norwich Parmacal Co.—Dimethyl Hydroxypyrimidine Adduct and Nitro Furaldehyde Semi-carbazone.

2,828,310—R. Auchincloss—Thiamine Ureide.

2,828,314—Olin Mathieson—Substituted Aminobenzoldehyde Isonicotinoyl Hydrazone.

2,828,315—Merck—Procaine Salt of Pyridoxal Phosphate.

2,828,316—A. J. Pacini et al.—Quaternary Ammonium Compound of Benzethonium Chloride and Saccharin.

2,828,319—Upjohn—Crystalline Cortisone Acetate Process.

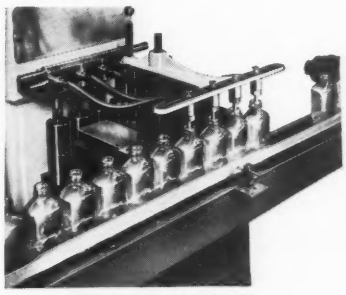
2,828,321-2—Am. Cyanamid—Keto Aliphatic Acid Esters and Hydroxy Thioaliphatic Acids.
2,828,328—Abbott Labs.—Monoalkylaminoalkyl Alkoxy Aminobenzoates.
2,828,340—Sterling Drug—Hydroxy Lower-Alkyl-Bis-(Cyclohexylpropyl) Amines.
2,828,341-2—National Cash Register—N - Halophenyl Derivatives of Leucauraime.
2,829,084—Merck—Alkyl - N(Nitro Thiazolyl)Carbonates.
2,829,086—Colgate — Dental Preperations Comprising Higher Aliphatic Perfluorinated Acids.
2,829,102-9—Lever Bros.—Non - Tarnishing Detergent Compositions.
2,829,143—Sterling Drug—Sulfamylphenylamino-Amino Triazine.
2,829,150—G. D. Searle—4-Hydroxypregnenes.
2,830,009—Am. Cyanamid—Chromatographic Recovery of Vitamin B_{12}.
2,830,010—Am. Cyanamid—Silica Aerogel-Filled Hexylresorcinol Capsules.
2,830,011—Am. Cyanamid—Textile Fabrics Containing Neomycin.
2,830,046—Norwich Pharmacal—N-(Nitro Furylidene)-Amino Thiooxazolidones.
2,830,048—Lakeside Labs. — Disubstituted Aminoalkyl Acetylenes.
2,830,049—Lakeside Labs. — Acetylenic Tetrahydroisoquinolines.
2,830,050—Lakeside Labs.—Sym. Substituted Aminoalkyl Hydrazines.
2,830,052—Imperial Chem. Ind.—Triazines.
2,830,053—Burroughs Wellcome—6-Substituted Purines.
2,830,054—Imperial Chem. Ind.—Pyrimidines.
2,830,055—Am. Home Products—Chloroquinazolines.
2,830,056—Farbwerks Hoechst—Phenylpiperazines.
2,830,057—Ciba—Phenyl-Lower-Alkyl Piperidines.
2,830,063—Sterling Drug — Cycloakylcycloxy Hydroxy Ethynyl Androstenes.
2,830,074—N. T. Farinacci—Polyhydrophenanthrenes.
2,830,079—Am. Home Products—Mixed Salts of Tetraioclophthalic Acid Opaque to X-Radiation.
2,830,082—Dow—N-(Hydroxyalkyl)Taurines.
2,830,088—O. H. Hubner et al. (Denmark)—Thio Basic Benzhydryl Ethers.
2,830,929 — Chem. Werke Huls (Germany) — Aerosol Room Disinfection With Hydroxy Alkyl Substituted Cyclohexanols
2,830,930 — A. M. Olinger — Parenteral Dental Local Anesthetic Solutions Containing an Alkantheline
2,830,932—Abbott Labs.—N,N[1] Dibenzylethylene Diamine Salt of Heparin
2,830,933—Chas. Pfizer—Vitamin B_{12} Products
2,830,935—Chas. Pfizer—Epoxidation of Steroids
2,830,936-7—Chas. Pfizer—11-Hydroxylation of Steroids
2,830,982—Abbott Labs.—Erythromycin Sulfamate
2,830,984-5—Am. Cyanamid—Furanosyl Purines
2,830,987—Soc. Usines Chim. Rhome Poulenc—Phenthiazines

Italian

TALC

CHARLES MATHIEU, Inc.
77 RIVER STREET • HOBOKEN, N. J.
Telephone: OLdfield 9-4412
New York: BArclay 7-3618

NEW HIGH SPEED LIQUID FILLER
for
PLASTIC, GLASS and METAL CONTAINERS



High Speed Liquid Filler
Model CF-520Q

Higher speed and increased accuracy of a broad range of drug and cosmetic products is now possible with this new development. Especially designed for handling a broad line of plastic containers where vacuum or gravity filling is not suitable. Dispenses accurately aqueous solutions, oils, light creams and suspensions up to 8 oz. All stainless steel liquid contact parts; provision for rapid disassembly for cleaning and sterilization.

PerfeKtum
TRADE MARK REG.

Write for Bulletin #358CF—also Bulletin #955A, describing 12 different filling machines.

Est. 1922 POPPER & SONS, INC.
300 FOURTH AVENUE
NEW YORK 10, N. Y.

2,830,988—Dr. Karl Thomae (Germany)—Aryl Amino Methyl Dioxolanes

2,830,991—Chemie Grunenthal (Germany) — Amino-Piperidine-2-6-Diones

2,830,992-3—Hoffmann-La Roche—Quinolizines

2,830,994 — Distillers (England) — Isonicotinic Acid Hydrazide From Pyridine Nitrile

2,830,995—Firma Riedel-De Haen (Germany)—T. Hydrocarbon Diphenyl-Dioxo-Pyrazolidines

2,830,997—A. H. Robins Co.—3-Pyrolidinol Ethers

2,831,000—Chas. Pfizer—Partial Esters of Hexahydrokojic Acid

2,831,002—Chas. Pfizer—Steroids

2,831,003—Olin Mathieson—Cycloborate Esters of Dihydroxy Steroids

2,831,005 — Merck — Methyl-5-Hydroxy-8-Methoxyoctanoate

2,831,016—U. of Missouri—Substituted Aminoalkyl Dialkylsubstituted Benzoates

2,831,027—Merck—Isocamphanes

2,831,749—Johnson & Johnson—Sterilizing Plaster of Paris Surgical Dressings

2,831,770—Hoffmann-La Roche—Enrichment of Cereal Grains with Vitamin B_2-Active Substance

2,831,796—Allied Labs.—Preparation of a Chemically Standardized Protoveratrine Product

2,831,798 — Merck — Microbial Polyhydroxylation of Steroids

2,831,815—Colgate—Detergent Composition

2,831,847—VEB Chem. Fab. (Germany)—Hydroxyalkylated Fatty Acid Chloride-Peptide Detergent Condensation Product

2,831,851—Hoffmann-La Roche—Polysulfuric Acid Esters of N-Formyl Chitosan

2,831,857—Ciba—8, 9 Oxido-3, 7, 11-Oxygenated Steroids

2,831,862 — Lakeside Labs.—N-Alkyl-3-Hydroxypiperidine Ethers

2,831,863 — Lakeside Labs. — Di-(N-Alkyl-3-Piperidyloxy) Alkanes

2,831,864 — Allied Labs. — 1-P-Alkoxyphenyl-1-Alkyl-3-Piperidino-1-Propenes

2,831,865—Geigy—4-Substituted 1, 2-Diaryl-3, 5-Dioxopyrazolidines

2,831,866—May & Baker—Pyridyl-4-Nitrosophrazoles

2,831,872—Olin Mathieson—Steroids

2,831,873 — Chas. Pfizer — Testosterone 4, 4-Dimethyl Pentanoate

2,831,875-6—Chas. Pfizer—Steroids

2,831,887—G. D. Searle—Aralkoxynaphthalenes

2,831,891 — National Research Corp. — 2-Hexyl-2-Hydroxy-Tridecanedioic Acid

2,831,892—G. D. Searle—N-(3-Isopropylaminopropyl) Diphenylacetamide

2,832,718—Am. Cyanamid—Tetracycline Organic Sulfonic Acid Dye Salt Compositions

2,832,719—Olin Mathieson—Nystatin Purification

2,832,720-1—Merck—Stabilized Vitamin Compositions

2,832,722—Ortho Pharmaceutical—Radiopaque Formulation Comprising PVP as Bodying Agent

2,832,743—Lever Bros.—Free Flowing Alkyl Aryl Sulfonate Detergents

2,832,772-3—Monsanto—Diazo Compounds for Synthesizing Steroids

2,832,775—G. D. Searle—Phenothiazines

2,832,774—Upjohn—Steroids

2,832,776—Union Chim. Belge—Amino Derivatives of Isovaleric Acid

2,832,777—G. D. Searle—2-Aminophenyl-3-Methylmorpholines

2,832,780—Warner Lambert—Hydrazides of Pyridazonly-Substituted Alkanoic Acids

2,832,781—Burroughs Wellcome—6-Chloropurine

2,832,784 — Burroughs Wellcome — Antifungal Piperazines

2,832,785—Lakeside Labs.—Heteroyclic Aminoalcohol Esters of N-Substituted Carboxylic Acids

2,832,786—Wm. S. Merrell Co.—Phosphoramides

2,832,787—Olin Mathieson—Oxadiazoles

2,832,788—Merck—Crystalline Alkaline Earth Metal Salts of 4-Amino-3-Isoxazolidone

2,832,791 — Warner Lambert — Thiosemicarbazones of Thienylaldehydes and Thienylketones

2,832,792—U.S.A.—3, 4-Methylenedioxyphenyl Acetals as Synergists for Pyrethrins

2,832,796—G. D. Searle—7-Aminamoyl-Octahydrophenanthrene-1-Carbonitriles

2,832,805—G. D. Searle—Arylmethylene Methyl Hydroxy Octahydro Phenanthrones

2,833,691—Abbott Labs.—Blood Preservation by Ion Exchange Resin Decalcification

2,833,693 — G. M. Naimark — Transparent Shaving Cream

2,833,696—Abbott Labs.—Culture Process For Erythromycin A

2,833,722—DuPont—Greasy Soil Detergent

2,833,760—Ciba—2, 5-Bis(Methyl-Ethyleni mino)-Hydroquinones

2,833,761—Am. Cyanamid—Sulfapyridazines

2,833,762-3—Chas. Pfizer—Allopregnadiene-Ol-One-Peroxides

2,833,764—Am. Cyanamid—O-Methyl-L-Tyrosyl Amides

2,833,766—Ciba—6-Alkoxy-5-Cyano-Pyridazines

2,833,767—Soc. des Usines Chim. Rhone-Poulenc—Pyrimidines

2,833,768—Takeda Pharm. (Japan)—Vitamin B_1-Like Compounds

2,833,769—Chas. Pfizer—Thiamin Salts

2,833,770—Parke, Davis—Piperazines

2,833,772—Upjohn—Benzhydryl Ether N-Oxides

2,833,773—Licencia T.E.V. (Hungary)—Tropeines

2,833,774 — Warner Lambert — Quaternized Thiofuramides

2,833,775—Schering—Piperidines

2,833,776—Warner Lambert—Aryl-Substituted Piperidylpropanols

2,833,777—G. D. Searle—N-(Cyclic Aminomethyl) Phenylpiperidylmethanes

2,834,678—W. A. Hanson—Dietary Supplement.
2,834,710—Merck—Pancreatic Desoxyribonuclease Penicillin Composition.
2,834,712 — Am. Home Products — Urinary Estrogen Compositions.
2,834,714—Abbott Labs.—Erythromycin B Culture Process.
2,834,778—Ruhrchemie (Germany)—Dithiomalonic Acid-Dimorpholide.
2,834,779—Lakeside Labs. — Aminoalkyl Quinuclidiniums.
2,834,782—Endo Labs.—Monocalcium Monopiperazine Salt of Ethylenediaminetetracetic Acid.
2,834,783—Chas. Pfizer—Nortropene and Tropanols 2-Substituted By Diphenyl Carbinol.
2,834,784—Dow Chemical—1 Substituted-3-(1-Methyl-2-Pyrrolidinyl)-Piperidine.
2,834,785—Lakeside Labs.—N-Substituted-3-Thiol Piperidines.
2,834,787—A. C. J. Opfermann (Germany)—Pyridine-3-Aldehyde Acetals.
2,834,814—Glidden—Verbenyl Ethers.
2,835,627—Eli Lilly—Stable Vitamin B_{12} Solutions.
2,835,668—U. S. Vitamin Corp.—Pyridylethylated Benzoxazinediones.
2,835,669—C. H. Boehringer Sohn (Germany)—Morpholines.
2,835,671—Ciba—Pyridazines.
2,835,672—Ciba—Hydrocinnolones.
2,835,675—M. Abe et al. (Japan)—Elymoclavine.
2,835,676—Merck—Gamma-Keto-Tertiary Amines.
2,835,677—Geigy—4-Substituted 1, 2-Diaryl-3, 5-Dioxo Pyrazolidines.
2,835,678—Goher Tanabi & Co. (Japan)—Soluble Adrenochromes.
2,835,679—Eastman Kodak—Crystallizable Complex of Vitamin A Aldehyde and Sesamol.
2,835,680—Olin Mathieson—Steroids.
2,835,683—Chas. Pfizer — 14α, 16α-Dihydrocorticosterone.
2,835,684—Chas. Pfizer—14α Hydroxy, 16 Halo-Pregnenes.
2,835,697—Upjohn — Salicylic Acid β-Cyclopentylpropionate.
2,835,698—Upjohn—Secosteroids.
2,835,702—Merck—4-Chloro-5-Halobenzene-1, 3-Disulfonamides.
2,835,704—Merck—Pantetheine Intermediates.
2,836,539—Sterling Drug—Diamino Lower Alkylmercaptophenyl-Dihydro Triazines.
2,836,540—Hardt Foundation—Antacid Composition.
2,836,541 — Sterling Drug — Mannitol Stabilized Morphine-Papaverine Composition.
2,836,542—Novo Terapeutisk Lab. (Denmark)—Process for Crystalline Insulin.
2,836,543—Arthur D. Little—Sulfite Hair Waving Composition.
2,836,593—Merck—17α, 21-Oxido Derivatives of Cortisone and Dihydrocortisone.

POTDEVIN
Label Paster

Time savings of 30% and more with unskilled operators makes your POTDEVIN Label Paster quickly pay for itself. No adjustments required for varied shaped labels. Accurate control of adhesive minimizes waste and assures clean, neat labeling.

Available in 6", 8½", 12" and 18" widths.

ESTABLISHED IN 1893 POTDEVIN

POTDEVIN MACHINE CO.
257 North Street • Teterboro, N. J.
Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling

PRIVATE FORMULA
Tablets and Capsules
BY THE THOUSANDS—
OR BY THE MILLIONS

Over 44 years' experience enables us to render you prompt, accurate, and dependable service in the manufacture of your tablets and hard shell capsules. Our central location expedites delivery to any point in the country. Furnished bulk or packaged.

Vitamin Tablets and Capsules—Tablets—Ointments—Powders

We Invite Your Inquiries

Standard Pharmacal Co.
OF CHICAGO
PRIVATE FORMULA MANUFACTURERS
M. F. Charley, President
847-853 W. JACKSON BLVD CHICAGO 7, ILL.

2,836,594-5—Parke, Davis—Piperazines.
2,836,597—Akt. Bofors (Sweden)—Amides of N-Alkyl Tetrahydroquinaldinic Acid.
2,836,598—Sterling Drug—Tert. Amino 1, 5-Imino-Cycloalkanes.
2,836,600—Lepetit (Italy)—α-Bromo β(5-Nitro-2-Thienyl)Acrolein Isonicotinyl Hydrazone.
2,836,607 — Chas. Pfizer — Androstadiene Halo Compounds.
2,836,608—Olin Mathieson—Steroids.
2,836,623—G. D. Searle—Bis(hydroxyphenyl) Alkenones.
2,836,624—G. D. Searle—Naphthalenones.
2,837,434—Coe Labs.—Dental Impression Composition.
2,837,460—Eli Lilly—Pertussis Vaccine Preparation.
2,837,461—Sterling Drug—Aqueous Riboflavin Compositions.
2,837,462—Chicopee Manufacturing Corporation—Nonwoven Fabric and Products Containing Bacteristatic Agent.
2,837,463—Warner-Lambert—Therapeutic Compositions Comprising 5-Amino Hexahydropyrimidines or Salts Thereof.
2,837,464—Schering Corp.—Process for Dienes By Corynebacteria.
2,837,509 — Lasdon Foundation — Thiosemicarbazone Compounds.
2,837,513—Soc. des Usines Chim. Rhone-Poulenc—Tetracycline Salt of Penicillin V.
2,837,514—Merck—11-Keto Steroids.
2,837,516—Merck—Ethylenedioxy-Pregnadiene Dione.
2,837,517—Upjohn — 9, 11 β-Epoxy-17-Alkyltestosterones.
2,837,518—Soc. des Usines Chim. Rhone-Poulenc—Phenthiazines.
2,837,520—Ind. Chim. Profarmaco (Italy)—Tetrazoinidene Derivatives.
2,837,522—Am. Cyanamid—Alkylenedipiperazines.
2,837,525—Sterling Drug—Thienyl Cycloalkyl Aliphatic Tert. Amino Hydroxy Lower Alkanes.
2,837,526—Eli Lilly—2-Acetoxy-1, 2-Diphenyl-4-Piperidino-Pentane.
2,837,529—Am. Home Products—Thiazolidones.
2,837,535—G. D. Searle—1-Acylthio Substitution Products of 17α-Oxa-D-Homo-4-Androstene-3, 17, Dione.
2,837,538—G. D. Searle—17-Thioandrostadienes.
2,837,539—G. D. Searle—Pregnene-20-Thionones.
2,837,542—Merck—Halogenated Pregnane Diol Trione Esters.
2,837,543—G. D. Searle—Pregnene-1-Thiol Esters.
2,837,544—Olin Mathieson—Steroids.
2,837,545—Am. Cyanamid—Penta - Hydroxy Pregnene Dione and Esters.
2,837,568—G. D. Searle—Bis(Halophenylimino) Cyclohexanes.
2,837,571—Chas. Pfizer—2-Acylindanones.
2,838,377—Miles Labs.—Blood Test.
2,838,439—S. D. Goldberg—Injectable Local Anesthetic Solutions Comprising Mixtures of Soluble Procaine and Butethamine Salts.
2,838,441—Wm. S. Merrell Co.—1, 1-Di-(p-Chlorophenyl)-2-(2-Piperidyl)-Ethylene.
2,838,442—T. McMaster—Shaving Stick Composition.
2,838,443—Rutgers Res. & Educational Foundation — Concentrations of Lactobacilli.
2,838,485—Farbwerke Hoechst (Germany) — Readily Soluble and Stable Salts of Di-(4-Amidino-Phenyl) Triazene-(N-1. 3).
2,838,490-2—Upjohn—6-Fluoro Steroids.
2,838,494—Upjohn — 17-β-Hydroxy-17α-Methyl-9(11) Androstene-3-One.
2,838,495-503—Upjohn—6-Fluoro Steroids.
2,838,504 — Sterling Drug — Benzimidazolylstilbene Whitening and Brightening Agents.
2,838,505—Sterling Drug—Phenothiazinyl Lower Alkyl Iminocycloalkanes.
2,838,506—Ciba—Alkyl-Aminoalkyl Compounds.
2,838,507—G. D. Searle—Hydroxyalkylpiperazinoalkylhalophenothiazines.
2,838,509—G. D. Searle—9-Aminoalkyl-9-Xanthenecarboxamides.
2,838,510—Eprova (Switzerland)—Morpholino-Alkanol Ethers and Salts thereof.
2,838,516—Ciba—2-(Thienyl Methyl) Piperidines.
2,838,518—Deutsche Gold -und Silber - Scheideanstalt (Germany)—Ethynyl Piperidyl Carbamic Acid Esters.
2,838,527—Chas. Pfizer—Hydroxy Steroids.
2,838,528, *2,838,531-2*, *2,838,535-49*—Upjohn—6-Fluoro Steroids.
2,838,529—G. D. Searle—Cyclopenta (α) Phenanthren-3-One.
2,838,530, *2,838,533*—G. D. Searle—Nortestosterones.
2,838,534—Upjohn—7-Lower Alkyl Steroids.
2,838,550—Upjohn—Hydroxy Pregnadiene Dione.
2,838,552—C. F. Boehringer & Soehne—Chloramphenicol Esters.
2,838,569—Wisconsin Alumni R. F.—Decahydrophenanthrene Diones.
2,839,355—Johnson & Johnson—Sterilization of Surgical Dressings.
2,839,446—J. R. Geigy A.-G.—Pyrimidines.
2,839,447—Riedel-de Haen (Germany) — Intravenous Ultrashort-Acting Anesthetic Composition.
2,839,448—Procter & Gambel—Dentifrice Containing a Stannous Compound and a Carboxylated Alkyl Cellulose Ether.
2,839,524—Upjohn—Erythromycins.
2,839,525—Am. Cyanamid—3-Aminoribose.
2,839,527 — Hoffmann-LaRoche, Inc. — Sulfanilamido Isoxazoles.
2,839,529—May & Baker—Isothiazoles.
2,839,530—Soc. des Usines Chim. Rhone-Poulenc—Phenthiazines.
2,839,532—Ciba—Pyridazones.
2,839,536—Hoffmann-LaRoche, Inc.—Salts of Disubstituted Carbamic Acid Esters.

2,839,537—Ciba—Tricyclic Diketone.
2,839,539—Sadolin & Holmblad (Denmark) Furan Intermediates.
2,839,540—Sandoz Trust — 1-Amino-4-Hydroxyanthraquinone Sulfonic Acids.
2,839,567—Monsanto — 3-Formyl-3α-Methyl-6-(β-Carboxyethyl)-7-Keto-Octahydropentanthrene Ester.
2,839,582—W. L. Howard et al.—Ethers of Chlorinated and Fluorinated Phenols.
2,839,584—Merck—2, 6-Bis(3-Methoxy-4-Hydroxybenzyl) Cyclohexanol.
2,839,585—Eastman Kodak — Conversion of Retinene-Phenolic Material Complexes to Vitamin A.
2,840,504—D. E. Vierling—Anthelmintic Phenothiazine Compositions.
2,840,506—D. J. Goodfriend—Gastro-Intestinal Therapeutic Composition Containing Urea and Carbon Dioxide.
2,840,508—Schering A. G.—Injectable Steroid Hormone Composition.
2,840,509—Valley Forge Military Academy—Cosmetic Lanolin Composition.
2,840,510—West Labs.—Iodine Surface - Active Carrier Germicidal Preparations.
2,840,562—Chemac Company—Salts of Polybasic Acids, Atropine and Adrenergic Amines.
2,840,565—Merck—Optical Isomers of 4-Amino-3-Isoxazolidone.
2,840,567—Farber. Bayer. — 1-(p-Aminophenyl)-3-Aminopyrazolines.
2,840,572—Merck—Cyclopentanophenanthrenes.
2,840,573—G. D. Searle—18-Oxygenated Allopregnanes.
2,840,576—G. D. Searle—16-Cyanopregna-3, 5-Diene-7, 20-Diones.
2,840,577—G. D. Searle—17-Thio Derivatives of Estratrien-3-Ol and of Estratetraen-3-Ol.
d,840,578-80—Olin Mathieson—9α - Hydroxyprogesterones.
2,840,581—Upjohn—Carbonyloxy Steroids.
2,840,582—G. D. Searle—Cyclopentanophenanthrones.
2,840,583—Hoffmann-La Roche, Inc.—Halogen and Dihalophosphato Derivatives of Acyloxyalkenes.
2,840,586—Hoffmann-LaRoche, Inc.—Intermediates for Carotenoids.
2,840,602—Sterling Drug—Amino Triiodophenyl Propionyl Amino Acids.
2,841,527—U. S. Vitamin Corp.—Medicinal Emulsions.
2,841,530—Van Ameringen-Haebler, Inc.—Hair Waving Compositions Containing Secondary Amino Aliphatic Alcohol Dithiocarbamates.
2,841,531—Ciba—Enzymatic Splitting of D, L-Steroid Racemates.
2,841,581—Ciba—Banzoquinones.
2,841,582—G. D. Searle—Aminoalkyl Esters of 2-Carboxy-2H, 1, 4-Benzothiazin-3-(4H)Ones.
2,841,584—Sterling Drug—Hexahydropyridazines.
2,841,586—G. D. Searle—N - Hydroxyalkyl Derivatives of Yohimbine.
2,841,589—Akt. Pharmacia (Sweden)—Alpha-Aryl, Al-

Tops them all! for Cologne Promotions

. . . . Rehn
ATOMIZER TOPS. . . .

Here's the way to pack sales power in your next cologne promotion. Take your choice of a Rehn custom creation or immediate delivery on Styles 1070 and 1082 in all cap sizes. They're ideal for tester tops, too. Next time, remember the Rehn Company, purveyors to your industry for more than a quarter-century.

THE REHN COMPANY
4020 FITCH ROAD
TOLEDO 13, OHIO

new product possibilities

PROPHENPYRIDAMINE MALEATE
The antihistaminic with low toxicity—high antihistaminic activity. Effective against a wide variety of allergic disorders.

NEOMYCIN SULFATE
Regular powder or micronized powder.
The antibiotic with an unusual degree of stability. For topical, oral and parenteral use.

HYDROCORTISONE ALCOHOL U.S.P.
HYDROCORTISONE ACETATE U.S.P.
Regular powder or micronized powder.
Excellent chemical quality—carefully controlled for fineness and uniformity of particle size, for use in lotions, creams, suspensions or ointments.

VITAMERICAN CORPORATION
1 John Street, Haledon
Paterson 2, N. J.

A Dependable Source for Hormones and Fine Chemicals

pha (2-Pyridyl) Butyryl Amides.

2,841,590—Soc. des Usines Rhone-Poulenc (France)—Indoles.

2,841,596—Chas. Pfizer—Cyclic Ketones.

2,841,597—Shell—Triangulenes.

2,841,598—Organon, Inc. — Estradiol-17β-Phenyl Propionate.

2,841,600—Upjohn — 6α-Fluoro $\triangle$'-Cortisone and Hydro-Cortisone.

2,841,609—Sterling Drug — Dextro-6-Dimethylamino-4, 4-Diphenyl-5-Methyl-3-Hexanone.

2,841,610—Olin Mathieson—Esters of Aryl-Substituted Cyclobutane-Dicarboxylic Acids.

2,841,613—Am. Cyanamid—Alkoxy Diaminostilbenesulfonic Acids.

2,841,614—Ruhrchemie (Germany)—Tricyclodecane-Dicarboxylic Acid.

2,841,620—Hoffmann-LaRoche, Inc.—Unsaturated Tertiary Ethers.

2,842,441—F. M. Kuen (Austria)—Antimicrobial Preservative.

2,842,478 — Chas. Pfizer — Tetrahydrozoline-Central Nervous System Depressant Veterinary Compositions.

2,842,481—Chas. Pfizer—Oleandomycin Process.

2,842,544—Les Labs. Francais de Chimiotherapie—Ketosteroid Dihydroperoxides.

2,842,548—Am. Cyanamid—Piperazines.

2,842,550—Ciba—Deserpidic Acid Lactone.

2,842,557—Merck—Dodecahydrophenanthrenes.

2,842,558—Merck—α-Mercapto-γ-Butyrolactones.

2,842,559—Wisconsin A.R.F.—Estrone Intermediates.

2,842,560—Ethicon—Aminoalkyl Esters of 12 Keto-10, 11-Octadecenoic Acid and 12-Keto -10, 11, -Epoxy Stearic Acid.

2,842,566—Upjohn—6-Methyl-$\Delta^{1,4}$, 3 Keto Androstenes.

2,842,567—C. F. Boehringer (Germany)—Therapeutically Valuable Esters of Alcohols and Keto-Alcohols of the Steroid Series.

2,842,570-72 and *-73*—Upjohn—Steroids.

2,842,568—Olin Mathieson—Steroids.

2,842,570-72 and -73—Upjohn—Steroids.

2,842,575—Ethicon—Aminoalkyl Esters of 12-Ketooleic Acid and12-Ketoelaidic Acid.

2,842,587—Merck—Substituted Butyric Acids.

2,842,596—U. S. Vitamin—Indandiones.

2,842,599—Hoffmann-La Roche—Carotenoids.

2,843,521—Olin Mathieson—Magnesium Hydroxide in Stiff Gummy Gel Base.

2,843,522—Sterling Drug—Peri-Anal Ointment.

2,843,523—U. S. Vitamin Corp.—Androgens.

2,843,524—Armour & Co.—Prepn. of ACTH by Adsorption on Diatomaceous Earth.

2,843,525—Allen & Hanburys Ltd., et al.—Insulin Synthetic Poly-Amino Acid Complexes.

2,843,527—Glaxo Labs.—Production of Griseofulvin in Low Nitrogen Level Medium.

2,843,550—Calif. Research Corp.—Synthetic Detergent Compositions.

2,843,585—Sterling Drug — 3-Aralkyl-2-Oxazolidones and 3-Aralkyl-2-Pentoxazolidones.

2,843,591—Hoffmann-La Roche—2-Hydroxy-Benzoquinolizines.

2,843,594—Hoffmann-La Roche—Substituted Isonicotinic Acid amides.

2,843,595—Veritas Drug Co. (England)—Pyridyl-Bromobenzyl-Dialkyl Diamines.

2,843,597—Merck—5-Myristoylbenzimidazolone.

2,843,603—Research Corp.—2-Methyl-2-Carboxymethyl-cyclopentanol-3-Carboxylic Acid Lactone.

2,843,608—G. D. Searle—4-Estrene-3, 17-Diol, -Esters, and 17-Alkyl Derivatives.

2,843,609—G. D. Searle—17-Alkenyl and Alkynyl Derivs. of 4-Estrene-3, 17-Diol.

2,843,611—Upjohn—Cortisone Process.

2,843,621—Ortho — Para-Aminobenzoates of Ethynyl Carbinols.

2,843,631—Hoffmann-La Roche—Unsaturated Aldehydes Method.

2,844,503, 4—Am. Cyanamid — Nematocidal Composition with Cyanoethyl Hydrazines.

2,844,509—Sterling Drug—Anti-Coccidial Composition with 2, 2'-Thiobis(2, 4-dichlorophenol).

2,844,510—Schenley Industries—Phosphoric Acid Derivs. -of 1-Phenyl-2, 3-Dimethyl-4-Amino-5-Pyrazolone.

2,844,511—Merck—Prepn. of Improved ACTH.

2,844,512—Upjohn—Fumagillin Enveloped in Fatty or Waxy Substance and Enclosed in Ultraviolet Opaque Container.

2,844,513—U.S.A.—Medium and Method for Mass Culture of Microorganisms.

2,844,576, 7—Am. Cyanamid—Purines.

2,844,578—DuPont—Pyrimidines.

2,844,585—Sterling Drug — Quat. Ammonium Alkylamino Benzoquinones.

2,844,586-7—E. A. Ferguson—Methapyrilene and Thenfadil Nicotinate and Carboxyhistadyl and Analogs.

2,844,588—C. O. Siebenmann et al.—Isomicotinyl Hydrazones of Certain Formyl Phenoxy Acetic Acids.

2,844,590—Monsanto—4-Alkylidene-2-Oxazolidones.

2,844,591—Mead Johnson — 1-Substituted-3-Pyrrolidylmethyl Benzilates.

2,844,600—Upjohn—22-Cyanohydrines of Bis-Nor-Cholen -Al Compounds.

2,844,601—Upjohn—3-Oxygenated Bisnor-17(20)-Cholen-22-Ols.

2,844,602—Syntex (Mexico)—4-Methyl Testosterones.

2,844,604-5—Upjohn—Steroids.

2,844,621—Olin Mathieson—Alkylaminoalkyl-4-Alkoxy-2, 6-Dialkylbenzoates.

2,845,353—Olin Mathieson—Sweetening Composition.

2,845,381—Organon—Cosmetic Skin Prepn. Containing Androstanes.

2,845,415—Abbott Labs.—Erythromycin Isethionate.

2,845,425—Eli Lilly—Aminopyrimidines.

2,845,426—Schenley Industries—Vitamin B, Derivatives.

2,845,427—Sterling Drug—T-Amino-Substituted 1, 5-Iminocycloalkanes.

2,845,430—Ciba—1-Amino-2-Pyridones.

2,845,431—Hoffmann-La Roche—Alkyl-Piperidiones.
2,845,432—Merck—Benzamido and Acetamido 4-Amino-3-Isoazolidones.
2,845,434—Am. Home Products — Dialkylaminoethyl Esters Salts of Cyclic Guamidino Acids.
2,845,440—Hoffmann-La Roche—Carotenoid Intermediates, such as Trimethyl Ethylenidioxy Cyclohexanone.
2,845,460—Hoffmann-La Roche—Trimethyl Cyclohexan-1-One-4-Ol.
2,845,462—Ortho Pharmaceutical — Vitamin A-Active Compounds.

JUST PUBLISHED
Drug & Cosmetic Catalog for 1958-1959

Greatly enlarged—now contains a directory on AEROSOLS—Contract Fillers, etc.

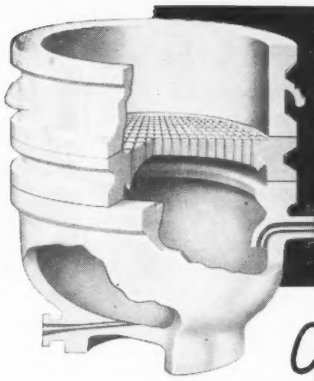
Complete Reference Book for Drug and Cosmetic Manufacturers

- Complete and only specialized directory of all cosmetic suppliers
- Trade Name Directory of drug and cosmetic suppliers
- Complete condensed catalogs of leading supply companies
- Private Formula and Contract Packagers
- Packages and Packaging Materials
- Machinery and Equipment Manufacturers
- Legal Section
- Aerosols
- Statistics
- Associations of the trade
- Periodicals of the industry

And Special Feature Articles on Cosmetic and Pharmaceutical Formulations. Buyers, Chemists, Perfumers, Plant Managers, Executives of Drug and Cosmetic Manufacturing Companies will find the information they want in Drug & Cosmetic Catalog.

Beautifully bound — 364 pages
$4.00 in U.S.A. Postpaid
$5.00 Foreign Postpaid

BOOK DEPARTMENT
DRUG & COSMETIC INDUSTRY
101 West 31st St., New York 1, N. Y.



CHEMICAL PORCELAIN
VACUUM FILTERS
Offer:

- **Versatility:** ideal for batch production or where quick-changeovers are desirable.
- **Simplicity:** most economical to maintain and operate.
- **Corrosion-Resistance:** inert to all chemicals and solvents except hydrofluoric acid and hot caustics.
- **Non-absorbent:** body is dense, impermeable.
- **Non-contaminating:** no metallic impurities, the porcelain body is completely iron-free.
- **Easy-Cleaning:** cleans as easily as a china dish.

All "U.S." vacuum filters will withstand a complete vacuum. They are made in several styles and in a size range from one gallon to 150 gallons.

Write for Bulletin F-40 259E

CHEMICAL CERAMICS DIVISION
U. S. STONEWARE
AKRON 9, OHIO

Price and Quality are factors...

Call Us

BArclay 7-4465

you may be pleasantly surprised!

TALL OIL PRODUCTS
ALL TYPES
ACID REFINED, DISTILLED
AND
FATTY ACIDS

SINCE 1838 DOMESTIC & EXPORT
Welch, Holme & Clark
COMPANY, INC.
No. 1 Hudson Street, New York 13, N. Y.

Professional Service

***ARLINCO RESEARCH LABORATORY, INC.**
Research, Formulation and Application to the Industry.
Ethical Pharmaceuticals, Drugs, Cosmetics and Perfumery.
333 W. 52nd St., New York 19, N. Y.
PLaza 7-3861
*A-R-L Inco means: Applied Research Laboratory, Incorp

LEBERCO LABORATORIES
Hormone Assays • Drug Assay
Pharmaceutical and Cosmetic Research
Sterility Tests • Toxicity Studies
Send for information concerning our services
125 HAWTHORNE ST., ROSELLE PARK, N. J.

RESEARCH LABORATORIES
EVERY FORM OF CHEMICAL SERVICE
Cosmetic Formulations—Toxicology—Engineering Analyses—Market Research
SNELL
For information or consultation, call WAtkins 4-8800 or write to:
FOSTER D. SNELL, INC.
29 West 15th St.,
New York 11, N. Y.

Food and Drug Research Laboratories
INCORPORATED
Our 36th Year
ANALYSES
EVALUATIONS, CONSULTATION
MAURICE AVE. at 58th ST., MASPETH 78, N.Y.C.
* Formerly FOOD RESEARCH LABORATORIES, INC.

TRUESDAIL LABORATORIES, INC.
Chemists
Bacteriologists
Engineers
Request Publication CHEMISTRY IN ACTION on letterhead
4101 N. Figueroa
Los Angeles 65
California
CA 5-4148
San Francisco
Honolulu
PRODUCT & PROCESS DEVELOPMENT
TOXICOLOGY — STERILITY TESTS

CREATIVE RESEARCH and ANALYSIS
ANNOUNCING
TESTS of SHAMPOOS
AGAINST
PITYROSPORUM OVALE
TOXICOLOGICAL ASSAYS
Write Today for Brochure
Describes laboratory services for food, beverage, pharmaceutical, chemical, cosmetic and feed industries, as well as services to general industry

R-H
ROSNER-HIXSON LABORATORIES
and
Laboratory of Vitamin Technology div.
7737 South Chicago Ave., Chicago 19, Ill.
RE 4-0142

WISCONSIN ALUMNI RESEARCH FOUNDATION
Projects, Consultation, and Production Control Services in Biochemistry, Chemistry, Bacteriology, Toxicology—Insecticide Testing and Screening.
WRITE FOR PRICE SCHEDULE
WISCONSIN ALUMNI RESEARCH FOUNDATION
P. O. Box 2217-J • MADISON 1, WISCONSIN

Classified Advertising

Help Wanted

SALESMAN, Perfume compounds, essential oils, aromatic chemicals, flavors. Experience essential. Metropolitan New York territory. Sell complete line of long established house. Reply full details Box S-3, Drug & Cosmetic Industry.

ORGANIC RESEARCH CHEMIST, Ph.D. level, must have strong interest in synthetic bench work on terpenes, above average background, no previous industrial experience necessary. Leading, old established firm in New York City area. Generous retirement, insurance and medical plans. Application will be held in strict confidence. Our employees know of this advertisement. State salary requirements and send resume to Box S-2, Drug & Cosmetic Industry.

Situations Wanted

COSMETIC CHEMIST; Six years diversified experience in development, production, packaging and control. Age 30, married, veteran. Will relocate. Ambitious, future. Box J-2, Drug & Cosmetic Industry.

COSMETIC COMPOUNDER, creams, sun-oils, lotions, perfumes, special products, etc. Versatile, intelligent, reliable, long European experience. Arrived recently United States, speaks some English, wants position with future. Box J-3, Drug & Cosmetic Industry.

Business Opportunities

RARE PERFUMES FROM CUBA. Seeks to establish exclusive distributors in U.S.A. Two nice brands. (Industrial Service)—Expert Cuban perfume manufacturer has capacity available. Will manufacture your formula or develop "new perfume" under your trademark—Receptive to position: Fabielo Parfums Mfg. Co., P. O. Box 3300, La Habana, Rep. Cuba.

SMALL MAIL ORDER HOUSE seeks new and unique cosmetic items. Must be suitable and proven for mail order. Creams, lotions, shampoos, or other. Drop-ship acceptable. Send full details. Private label packing. Box S-4, Drug & Cosmetic Industry.

WILL BUY OUTRIGHT—or invest in operating private label, cosmetic, drug or allied field. Up to $25,000.00. Box S-1, Drug & Cosmetic Industry.

EVER SO OFTEN SOMETHING NEW COMES ON THE SCENE. New products, new ideas, new names, new formulas. Just to give you an idea, here are a few ideas. Honolula Monn for perfume, toilet water or cologne. HAV-A-TAN Suntan without sunburn—creme. lotion or oil. Minute Make-up Powder Pads with a shade of rouge for the powder you use. Saves time, easy to use. Mission of Old Mexico—Rose talcum powder or perfume. Chappy for wintery weather makes your skin feel like springtime. Skin Cocktail, hand and face lotion—in summer it is cool in winter just right. Many others. All formulas, trade names, ideas can be yours for a small down payment, balance royalty on sales. Write Box S-5, Drug & Cosmetic Industry.

Classified Advertising

Machinery and Equipment For Sale

FOR SALE: Model TT 3901 Ceco Carton Closing Machine—Serial #1639. Equipped with automatic tucking device and 3 ft. conveyor. Brand new condition, less than 6 months use. The Cannolene Co., P. O. Box 9003, Atlanta 14, Ga.

PENICILLIN PILOT PLANT EQUIPMENT: 750, 125 gal. stainless steel fermenters, Pfaudler 300, 100 glasslined reactors, Ertel Bacteria Filter, Colton Suppository machine, Eimco 18" T316 stainless steel Drum Filter, Colton Tablet Counter—Send for complete list. Perry Equipment Corp., 1429 N. 6th St., Phila. 22, Pa.

FOR SALE: Colton #17 S. S. Automatic Tube Filler & Closer; Stokes 43 B, S. S. granulator; Stokes 22 gal. S. S. granulating mixer; Stokes Model "R" Single Punch & DD-2 Rotary Tablet Presses; Portable Agitators 1 H.P. 430 rpm; Vacuum Shelf Dryers 6417 single door and #28 double door; Eppenbach S. S. Colloid Mill 1-50 gph; Am. Marsh S. S. Homogenizer 200 gph; Rotex Sifter 20 x 43 and 40 x 84 Stainless Steel Horizontal Spiral Mixer 1000# and Howes 4000# w/S. S. Body; Pony Mixers; Tanks; Labelers, etc. Send for our latest listings. The Machinery & Equipment Corp., 293 Frelinghuysen Ave., Newark 12, N. J., TAlbot 4-2050.

UNION
Rebuilt Machinery
Established 1912
Modern Rebuilt Machinery AVAILABLE AT TREMENDOUS SAVINGS
Hayssen and Package Machinery Transwraps.
Mikro Bantam, 1SH, 2TH, 3TH, 4TH Pulverizers.
Baker Perkins 50 gal. and 100 gal. Steel and Stainless Steel Jacketed Double Arm Heavy Duty Mixers.
Day 4000 lb. S.S. Jumbo Dry Powder Mixer.
Day 50 to 10,000 lb. Powder Mixers.
Baker Perkins 2¼ gal. to 200 gal. D.A. Mixers.
Standard Knapp 429, A-B-C, Ferguson Carton Sealers.
Ceco Adjustable Auto. and Semi Auto. Carton Sealers.
Pneumatic Scale Automatic Cartoning Units.
Pony, Ermold, World, Pneumatic Semi and Automatic Labelers.
Burt and Knapp Wraparound Labelers.
Day, Rotex, Robinson, Tyler Hum-mer, Gayco, Raymond, Great Western Sifters.
Fitzpatrick "D" S. S. Comminuter.
Stokes DD2 and RBB Tablet Machines.
Colton 3RP and 3B Rotary Tablet Machines.
Capem 4-Head, Resina LC Auto. Cappers.
Copper Coating Pans, 24" to 42" diameter.
MRM Automatic Vacuum Fillers.
S. & S. HG 84 and HG 88 Powder Fillers.
Tell Us All Your Machinery Requirements
COMPLETE DETAILS AND QUOTATIONS PROMPTLY SUBMITTED
UNION STANDARD EQUIPMENT CO.
318-322 Lafayette Street
New York 12, N. Y.
Phone: CAnal 6-5334

Aromatic Chemicals

FOR PERFUMERY AND FLAVORS

Isopropyl Quinoline • Isobutyl Quinoline
Ethyl Anthranilate • Isobutyl Anthranilate
Diacetyl • Acetyl Propionyl • Acetoin

FAIRMOUNT
CHEMICAL CO., INC.
600 FERRY STREET • NEWARK 5, N. J.

MOULDS

LIPSTICK - COLOGNE - DEODORANT
STYPTIC PENCILS - MASCARA
SUPPOSITORIES

PROGRESSIVE MACHINE WORKS
137 West 22nd St., New York 11, N. Y.

ROUGE COMPACT POWDER
PUNCHES FOR TABLETS
also
FOOT & POWER PRESSES FURNISHED

DIES

The C. E. Ising Corporation
Manufacturing Chemists

AROMATIC PRODUCTS
"I.G." ("ISING" Germicide)
SOAPS for KENNELS and INDUSTRIES
MASKING ODORS for INDUSTRIES
Founded 1908
133-24 41st AVE., FLUSHING, NEW YORK

®CODEDGE

LABEL DATING AND CODING MACHINE

Codes 2,000 labels per minute . . . All shapes, all sizes
Evidences positive product control. Saves labor, time and money. No service problem . . . Low up-keep . . . Lowest operating cost. Pays for itself again and again.

FOR DETAILS WRITE TO:

GRIFFIN - RUTGERS, INC.
Dept. D.C. 9, 41 E. 42 St., New York 17, N. Y.

MOULDS

for
LIPSTICKS
MASCARA
SUPPOSITORIES
STYPTIC PENCILS

and **DIES** *for* ROUGE COMPACT POWDER

Write for Catalog

A. CAVALLA, INC. 163 WEST 18TH STREET, NEW YORK, 11, N.Y.

Palladium Ammonium Chloride, Palladium Black
Diammine ... Palladium ... ide Diam
oxime, ... Monosu
Palladium ..., Palladous
Aldehyde, Palmitoleic Acid, Palmitoyl Chlori
Pancreas Powder, Panereatin, Panthenol, Pant
Pa... Pa... Pap... ol ... tain, d
Pa... G... Pec
Pectinolytic Enzymes, Pellidol, ...n,
Pentaacetyl-d-glucononitrile, Pe... -a-
Penta... Chlomo... onta
chlo... Acid, Pentadecylic Ac... Pent
dec... Acid, Pentaerythritol Mono... eryt
to... Pentaerythritol Mono... rin,

OVER 20,000 CHEMICALS IN STOCK!

Write for Our New 138-Page Catalog!

DELTA CHEMICAL WORKS, Inc.
23 West 60th St. New York 23, N. Y. PLaza 7-6317

BOOKS:

As a convenience to our subscribers we offer the books of all publishers—technical and non-technical—at the regular published price—postage paid anywhere.

Consult our BOOK DEPARTMENT—direct your inquiries to

Book Department
Drug & Cosmetic Industry
101 West 31st St., New York 1, N. Y.
LOngacre 3-3177

falba

Reg. U. S. and Foreign Countries
"THE HEART OF LANOLINE"

THE OXYCHOLESTERIN ABSORPTION BASE
Suggested Formulae on Request

Pfaltz & Bauer, Inc.
EMPIRE STATE BUILDING, NEW YORK

CAMILLI, ALBERT & LALOUE S.A.

Grasse, France **Established 1830**

Natural Perfumer's Materials Stocked by Our American Affiliate

ABSOLUTES

BASIL	JASMIN	MOUSSE D'ARBRE
BORONIA	JASMIN POMMADES	OAKMOSS
BROOM (Genet)	JASMIN CHASSIS	ORRIS
CASSIE ANCIENNE	JASMIN BENZOL	RESEDA
CIVET	JONQUILLE	ROSE DE MAI
CLARY SAGE	LABDANUM	ROSEMARY
EVERLASTING (Immortelle)	LAVENDER	THYM
GERANIUM	LIATRIX	TOBACCO
HAY	MATE	VIOLET LEAVES
HOPS	MELLILOT	YLANG YLANG A

CONCRETES — ESSENTIAL OILS — RESINOIDES

CAMILLI, ALBERT & LALOUE, INC.

15 East 48th Street **New York 17, N. Y.**
Phone PLaza 3-6070

Jasmin

ADVERTISING INDEX

Abbe Engineering Co. 381
American Aromatics, Inc. 383
American Can Co. ....Facing 315
American Cholesterol Products, Inc. 376, 378, 380
Anchor Hocking Glass Co. 326-327
Atlas Powder Co. ....Facing 281

Baker & Bros., H. J. 368, 369
Beauty Fashion 264
Baker Chemical Co., J. T. 356

Camilli, Albert & Laloue, Inc. 398
Carr-Lowrey Glass Co. 310
Cavalla, Inc., A. 397
Chrystal Co., Inc., Charles B. 381
Colonial Applicator Co. ....Facing 314
Colton Co., Arthur 384
Community Opinion, Inc. 373
Continental Oil Co. 360
Crown Cork & Seal Co., Inc. 308

Delta Chemical Works 397
Deutsche Hydrierwerke GmbH 273
Devold Oil Co., Peder 379
Distillation Products Industries 280
Dodge & Olcott, Inc. 276
Dow Chemical Co., The 270-271
Dow Corning Corp. 332
Dragoco, Inc. ....Facing 264
Du Pont de Nemours & Co., Inc. 348
Durlin Co. ....Facing 261

Eastman Chemical Products, Inc. 364
Encapsulations, Inc. 383
Ertel Engineering Corp. 379

Fairmount Chemical Co., Inc. 397
Felton Chemical Co., Inc. 262
Firmenich, Inc. ....Facing 260
Florasynth Labs., Inc. 359
Fritzsche Brothers, Inc. ....Bet. 354-355

Gane's Chemical Works 385
General Chemical Div., Allied Chemical Corp. 320-321
Gesell, Inc., R. 385
Givaudan-Delawanna, Inc. ....Bet. 288-289, 336
Glycerine Producers Association 266
Griffin-Rutgers, Inc. 397
Groen Manufacturing Co. 344
Gross & Co., A. 272

Harchem Div., Wallace & Tiernan, Inc. 364
Haring Equipment Corp. 387
Hazel-Atlas Glass—Div. of Continental Can Co. 325
Helfrich Labs. 375
Hercules Powder Co. 261
Heyden-Newport Chemical Corp. 284
Hoffmann-La Roche Aromatics Div. ..Bet. 330-331
Hoffmann-La Roche, Inc. 257, 282, 334
Huisking & Co., Charles L. 379

Ising Corp., C. E. 397

Knox Glass, Inc. 314
Kohnstamm & Co., H. ....Facing 280
Kolar Labs., Inc. 260

Lambert Engraving Co. 318
Lautier Fils, Inc. 268
Leuders & Co., George 363

Mallinckrodt Chemical Works ....Facing 289
Maryland Glass Corp. ....Facing 323
Mathieu, Inc., Charles 389
Merck & Co., Inc. 342
Metalsmiths Div. of Orange Roller Bearing Co. 387

National Aniline Div., Allied Chemical Corp. ....Facing 288
New Jersey Zinc Co., The 377
New York Quinine & Chemical Works 279
Norda Essential Oil & Chemical Co. ....Cover 2

Orbis Products Corp. ....Facing 265

Peerless Tube Co. ....Facing 322
Penick & Co., S. B. ....Facing 272
Pennsylvania Refining Co. 265
Pfaltz & Bauer, Inc. 397
Pfizer & Co., Inc., Charles ....Cover 4
Plax Corporation 328
Polak's Frutal Works 278
Popper & Sons, Inc. 389
Potdevin Machine Co. 391
Precision Valve Corp. 316
Progressive Machine Works 397

Reheis Co., Inc. 367
Rehn Co., The 393
Richford Corp. 324
Ritter & Co., F. 384
Robinson Wagner Co., Inc. ....Facing 338
Rohm & Haas Co. ....Facing 273

Scovill Manufacturing Co. 306
Sonneborn Sons, Inc., L. 277
Standard Pharmacal Co. 391
Sterwin Chemicals, Inc. 259
Stokes Corp., F. J. 352-353
Synfleur Scientific Labs., Inc. 267

Ungerer & Co. ....Cover 3
Union Carbide Chemicals Co. 312-313
Upjohn Co., The 286
U. S. Bottlers Machinery Co. 346
U. S. Industrial Chemicals Co., Div. of Nat'l Distillers & Chemical Corp. ....Bet. 370-371
U. S. Stoneware 395

van Ameringen-Haebler, Inc. 274-275
Vanderbilt Co., R. T. 263
Van Dyk & Co., Inc. 340
Verona Chemical Co. ....Facing 339
Vitamerican Oil Corp. 393

Wallace & Tiernen, Inc. 364
Welch, Holme & Clark Co. 395
Will & Baumer Candle Co., Inc. 269